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ABSTRACT

The Healthy for Life (HFL) program was an efficacy test of an adolescent health promotion program designed specifically for use with middle school students. Four conceptually distinct, but inter-related, components were designed to influence young adolescents in school, with their peers, in their families, and in the communities. HFL was unique in that it addressed five health behaviors with one program: (1) poor nutrition habits; (2) tobacco use; (3) alcohol use; (4) marijuana use; and (5) the early onset of sexual behavior. An extensive evaluation was designed to determine whether or not the program was more effective than existing health education efforts in preventing these harmful behaviors. HFL also tested the relative effectiveness of two program versions: the Intensive version, which included a 12-week in-school intervention in seventh grade, and the Age Appropriate version, which was a 4-week in-school intervention delivered sequentially in grades 6, 7, and 8. Evaluation data included the reports from participating schools, with a final sample of 2,278 students. Responses of 554 parents to a questionnaire and teacher responses provided additional data. Parents, teachers, and students responded favorably to the program. Results of the process evaluation are consistently positive. Outcome results are fairly consistent across a variety of analytic techniques in showing significantly positive effects for the "Intensive" version on measures of smoking and smokeless tobacco, meal frequency, perceptions of peer use, and offers of substances. There is also a positive (marginal or significant depending on the analytic model used) effect on the overall scale of substance use. Because of similar trend data, it is hypothesized that tenth-grade data for the "Age Appropriate" version will yield positive results similar to those observed for the "Intensive" condition at ninth grade. (Contains 17 tables and 115 references.) (SLD)

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FINAL REPORT

HEALTHY FOR LIFE: An Efficacy Test of Two Program Versions

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THE HEALTHY FOR LIFE PROJECT

A SUMMARY OF RESEARCH FINDINGS

The **Healthy for Life** Program was an efficacy test of an adolescent health promotion program designed specifically for use with middle school students. Four conceptually distinct, yet inter-related, components were designed to influence the young adolescents in school, with their peers, family and in their community. **HFL** was unique in that it addressed five health behaviors with one program: poor nutrition habits, tobacco, alcohol and marijuana use and early onset of sexual intercourse. An extensive evaluation was designed to determine whether or not the program was more effective than existing health education efforts in the control schools and associated communities in preventing these harmful health behaviors. **HFL** also tested the relative effectiveness of the two program versions: the Intensive version which included a 12 week in-school intervention in 7th grade, or the Age Appropriate version which included a 4 week in-school intervention delivered sequentially in 6th, 7th and 8th grades.

The evaluation research included an extensive process evaluation and an outcome evaluation with random assignment of schools to conditions. Recruiting the 22 schools necessary to conduct the research was a long and complex process that took many more resources than anticipated. During the process it became necessary to modify the initial research design by allowing schools to self select either the Age Appropriate or Intensive condition. This modification did not harm the equivalence of the treatment groups and actually improved the external validity of the study. There were no significant differences at baseline between the three conditions on substance use behaviors, prior health education exposure, or on several measures of health attitudes. However, the Intensive version had a lower percentage of white subjects (91%) than the Age Appropriate version (94%); parents of students receiving the Age Appropriate version had fewer years of education; and subjects in the control condition were more likely to be living with two parents (78%) than subjects in either of the two treatment conditions (72%). Mothers of students in the control condition were less likely to work full-time.

The evaluation data included an annual fall self-report survey with carbon monoxide sampling to validate self reported smoking behavior, classroom observations, student and teacher interviews, student and parent feedback questionnaires, teacher logs, rankings and written accounts, and written records maintained by both evaluation and program staff. A cohort Health Education Experience Profile and a Community Mobilization Index were also constructed for each site using on-site and telephone interviews with both purposive and snowball samples.

The original pool of potential subjects numbered 2,811; the final N was 2,278. These students attended 21 elementary, middle or junior high schools in 17 small cities and towns (69%) or rural areas (27%) throughout Wisconsin. The population was 51.5% female and predominately white (95.6%). Seventy-two percent of the subjects lived with two parents. About one-third of the parents had completed a college education or more, with approximately 50% completing high school only. Students reported that 86% of their fathers and 58% of their mothers worked full-time. At the completion of the ninth grade survey in the fall of 1991, 68% of the subjects were 14 years old and 29% were 15. This population was remarkably stable. Only 19% of the population was lost to the outcome survey from time one (the fall of 6th grade) to time four (9th grade).

The implementation fidelity of the in-school portion of the program – the curriculum and peer component – was extremely high. Ninety-six percent of the required lessons were delivered as written. An HFL project teacher co-taught the program at each site with local district teachers, contributing to the successful implementation.

The program was positively received by both teachers and parents. Teachers felt the curriculum was appropriate and the topics salient for middle schoolers. The vast majority enjoyed participating in HFL, reporting in particular, positive experiences with co-teaching. Teachers also perceived the program to be very dynamic and engaging of students, especially some of the more "difficult" students. Many teachers mentioned the family component as a unique and particularly strong feature of the program.

The teachers had some difficulty with those teaching methods that are outside the mainstream of health education. This was especially the case for using Peer Leaders, parent involvement, and health advocacy events that involved students interacting with the communities. To a lesser extent, this was also the case for cooperative learning methods, social inoculation techniques and replacing grades with an incentive system. Programmatically, these methods were critical to success; HFL had to go beyond traditional school boundaries and penetrate informal peer cultures, families and the community.

Over 80% of the parents responding to a feedback survey (554 responses or 29%) had read the program material mailed to them. The vast majority of parents reported noticing a positive change in their child's skills and expected a positive impact on future health behaviors. Sixty-seven percent of parents completed at least one of the HFL family activities; 56% of the students were successful in winning incentives for completing all activities with their families. While approximately half of the families attended at least one Parent Orientation Session, few were involved in HFL community task forces (6.5%).

The students themselves were overwhelmingly favorable toward HFL. They cited a positive classroom climate, rapport with the project teacher, and especially, the fun, active, hands-on nature of the program. Eighty-six percent of the students felt that they would use something they learned in HFL in their future lives. They named sexuality as the topic they learned the most about. Unfortunately, for the Age Appropriate version of the program,

negative behaviors immediately after the intervention for the intensive condition, which was then attenuated by a more gradual slope of increase in the targeted behaviors over the following year. The results for the students in the Intensive condition at time 3 tended to be negative, at the same time interval after the intervention as time 4 is after the Age Appropriate intervention.

There was a consistently strong effect of community substance use context on HFL students in all conditions. The contextual measure, derived from a survey of prior cohorts of students in the same schools, was a strong predictor of substance use among the following cohort of students, even four years later. This indicates the importance of addressing community norms and related factors in prevention efforts.

Perhaps the most encouraging finding is that HFL exposure successfully altered the social context of the students in the Intensive schools. Their perceptions of the substance use of their best friends, and of peers in general, were significantly lower than those of the students in the control schools. In addition, they report that they were offered substances less often. These intermediate factors are powerful predictors of future use and lead us, again, to predict more positive results in the future for both treatment cohorts. Both the Intensive and Age Appropriate versions demonstrate increased levels of communication with parents about health behaviors.

Extensive efforts to examine the link between the quality of the intervention to outcomes did not result in consistent or interpretable results. Increased community mobilization on prevention efforts for youth was associated with lower scores on use of chewing tobacco and sexual activity, and improved food choices. Health education exposure related positively only to marijuana use. However, it was marginally associated with higher smoking rates, perhaps indicating a saturation effect for anti-smoking education.

The results of our process evaluation are consistently positive. Outcome results are fairly consistent across a variety of analytic techniques in showing significantly positive effects for the Intensive version on measures of smoking and smokeless tobacco, meal frequency, perceptions of peer use, and offers of substances. There is also a positive (marginally or significantly, depending upon the analytic model used) effect on our overall scale of substance use. Because of similar trend data (an initial negative effect) immediately following implementation of both versions, we hypothesize that the tenth grade (T5) data for the Age Appropriate version will yield positive results similar to those observed for the Intensive condition at ninth grade.

the student enthusiasm declined from 6th to 8th grades. The female students liked the program better than the males as did the students chosen by their peers as Peer Leaders. The Peer Leaders provided additional credibility to the program: the students felt that they were presenting important information. Student satisfaction with the family component was generally high with 71% reporting that the activities were helpful and 75% reporting that their parents enjoyed their role in HFL.

As expected, there was extensive variation in the community efforts to interact with Healthy for Life. In some communities, existing organizations worked with our staff and with the students to promote health, but in others, little of note occurred. Those organizations with strong leadership, well established identities and clear missions in sync with our HFL goals were the most successful. The efforts made in the communities where the Age Appropriate version of the program was presented were not consistent due both to staff constraints and to conditions within the communities. The community events sponsored by the HFL task forces focused primarily on substance abuse issues or general health. Only a few of the community task forces evolved to the point of addressing local policy issues by the time our staff had left.

Statistical analysis of outcome data used a variety of models and approaches. Analysis was carried out using the school and subsequently the individual student as the unit of analysis. Multiple regression techniques were used including only time one and time four data and also including all four data points. The basic outcome analysis controlled for community substance use context and the baseline (sixth grade) value of the dependent (ninth grade) variable, and assessed the significance of dummy variables representing treatment conditions.

Students in the Intensive version of HLF were, by ninth grade, significantly less likely to use cigarettes, more likely to eat more meals in a week, and (the boys) were less likely to use smokeless tobacco than the students in control schools. HFL students who received the Intensive version also scored significantly lower on an overall scale of substance use by ninth grade. (This finding is either of marginal significance or significant at the $p < .05$ level depending on which analytic method is used.) The only significant effects after the fall of ninth grade (T4) for the Age Appropriate condition were negative: alcohol use and smokeless tobacco use were higher than for control students. The effect sizes for all of these results are small.

There were no significant differences between the treatment students and control students on other behavioral measures: food choices, sexual intercourse, alcohol use, and marijuana use. However, for all of these behaviors except food choices, movement is in the positive direction. For this reason, and two related reasons, we predict that data at time 5 (10th grade) will result in more positive results than those obtained to date. In a previous study (Moberg and Piper, 1990), the best results emerged 20 months after the program concluded. In HFL, the ninth grade data point (T4) is only 5 to 7 months after the last intervention for the Age Appropriate schools. The trend data indicate an increase in

ACKNOWLEDGEMENTS

Without the cooperation and trust of the school boards, administrators and staff of the following Wisconsin school districts, the **Healthy for Life** project could never have been completed. We would especially like to thank the many supportive building principals and the enthusiastic teachers who cooperated with us in delivering the School Component. The school names included in the final report are pseudonyms.

Alexander Middle School, Nekoosa
Badger Middle School, West Bend
Boscobel Elementary and High Schools
Cedarburg Middle School
Clinton Middle School
Denison Middle School, Lake Geneva
Gerritts Middle School, Kimberly
Holmen Middle School, Holmen
James Williams Junior High School, Rhinelander
Lake Mills Middle School
Lakeside and Hartland North Elementary Schools, Hartland
Lancaster Middle School
Merrill Middle School, Oshkosh
Milton Middle School
Perry Tipler Middle School, Oshkosh
Riverview Middle School, Plymouth
Rosendale and Brandon Middle Schools
Silverbrook Middle School, West Bend
South Park Middle School, Oshkosh
Verona Middle School
Webster Stanley Middle School, Oshkosh

We want to thank the special people who made the **Healthy for Life** Project possible: the **HFL** staff teachers who traveled from site to site teaching the curriculum and working with community groups. They are Jamie Scott, Mary Kandel Jungers, Kim Wendt Byer, Deanne Schuler, Lori Peterson, Heidi Hrupka Pankratz, Anne Magnan, Melinda Bensman, Debra Karpfinger and Mary Kelley.

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TABLE OF CONTENTS

I.	Executive Summary		1
II.	Research Questions		5
III.	Program Description		5
	A.	Theory Behind **Healthy for Life**	5
	B.	HFL School Component	7
	C.	HFL Peer Component	15
	D.	HFL Family Component	17
	E.	HFL Community Component	19
IV.	Methodology		21
	A.	Design	21
	B.	Data Collection Methods	27
	C.	Comparability of Conditions	39
	D.	Methods of Analyses	57
V.	Process Evaluation Findings		60
	A.	Findings From the School Recruitment Process	60
	B.	The School Component	65
	C.	The Peer Component	76
	D.	The Family Component	84
	E.	The Community Component	93
	F.	The Covariate Rankings	103
	G.	Case Studies	117
VI.	Outcome Evaluation Results		132
	A.	Subjects	132
	B.	Graphic Results	134
	C.	Statistical Analysis-School as Unit of Analysis	143
	D.	Statistical Analysis-Student as Unit of Analysis	143
	E.	Alternative Analyses	146
	F.	Mediating Variables	147
	G.	Size of Effects	149
	H.	Other Outcomes: Hard Drug Use, Contraception, Parental Communication	151
	I.	Ranking of Implementation	152
	J.	Community Mobilization and Prior Health Education	153
	K.	Summary	154

VII. Conclusions and Discussion 155
A. Answers to the Primary Research Questions 155
B. Importance of Social Context 156
C. Limitations of the Evaluation 156
D. Possible Causes for Partial Success 158
E. Suggested Changes to the HFL Program 160
F. Relevance to the Field 161
G. Future Research and Program Development Issues 162

VIII. References 164

LIST OF TABLES

TABLE NUMBER	TITLE OF TABLE	PAGE
IV - 1	Principal Component Analysis of Substance Use Items	36
IV - 2	Blocked Randomization using Principal Component as Blocking Factor	37
IV - 3	Group Equivalence After Assignment to Conditions	40
IV - 4	Equivalence on Substance Use Variables Among Treatment Groups: First Wave - Sixth Grade Data	41
IV - 5	Demographic Equivalence of Treatment Groups: First Wave - Sixth Grade Data	43
IV - 6	Group Equivalence: Experimental Cohort of Sixth Graders	44-45
IV - 7	Sample Retention By Experimental Condition Four Waves of Data Collection	49
IV - 8	Composition and Reliability of Scales	50
IV - 9	Results of Carbon Monoxide Testing: Self Report Compared to CO Results - T4 Survey	52
IV - 10	Cross-Sectional Consistency of Self-Reported Alcohol Use by Condition	53
IV - 11	Cross-Sectional Consistency of Self-Reported Smoking by Groups	54
IV - 12	Cross-Sectional Consistency of Self-Reported Sexual Intercourse by Group	54
IV - 13	Longitudinal Consistency by Condition: Self-Reported Drinking Behavior	55
IV - 14	Longitudinal Consistency by Condition: Self-Reported Smoking Behavior	56
IV - 15	Longitudinal Consistency by Condition: Self-Reported Intercourse	56
V - 1	Student Satisfaction With the HFL Program	74
V - 2	Declining Enthusiasm Among Students in the Age Appropriate Version	75
V - 3	Peer Leader Participation in HFL	78
V - 4	Rank and Score of Peer Leaders by Age Appropriate School	81
V - 5	Rank and Score of Peer Leaders by Intensive School	81
V - 6	Attendance at Parent Orientation Sessions	85
V - 7	Noticed Changes in Child's Skills	87
V - 8	Noticed Immediate Impact on Child's Behavior	88
V - 9	Future Impact on Child's Behavior	89
V - 10	Completed Family Activities	90

LIST OF TABLES cont.

TABLE NUMBER	TITLE OF TABLE	PAGE
V - 11	Homework Activities	90
V - 12	Parent-Student Interaction During HFL	93
V - 13	Involvement in the HFL Community Organizing Effort	96
V - 14	Success of the Planning Effort	98
V - 15	Success of Community Event	99
V - 16	Overall Implementation Quality Rankings by School	103
V - 17	Rankings on Prior Health Education	108
V - 18	Inactive CPAs by Site	114
V - 19	Active CPAs by Site	115
V - 20	Final ranking of Community Mobilization	116
VI - 1	Characteristics of Subjects by Condition	133
VI - 2	Results of Multiple Regression on Scaled Variables for Behavioral Outcomes: School as Unit of Analysis	142
VI - 3	Results of Multiple Regression on Scaled Variables for Behavioral Outcomes: Student as Unit of Analysis	144
VI - 4	Logistic Regression Results for HFL Behavioral Outcomes on Binary Variables	145
VI - 5	Multiple Regression Results for Outcomes on Scaled Mediating Variables	148
VI - 6	Predicted T4 Scale Values Using Basic Model by Condition to Illustrate Magnitude of Treatment Effects	150-51
VI - 7	Parental Communication Regarding Health Issues by Condition	152

LIST OF FIGURES

FIGURE NUMBER	TITLE OF FIGURE	PAGE NUMBER
III - 1	Program Influences of the Adolescents' Social Networks	6
IV - 1	Original HFL Research Design	21
IV - 2	HFL Research Design	23
IV - 3	Revised HFL Research Design	27
VI - 1	Alcohol Use Over Time	135
VI - 2	Smokeless Tobacco Use Over Time	136
VI - 3	Cigarette Use Over Time	137
VI - 4	Marijuana Use Over Time	138
VI - 5	Overall Substance Use Over Time	139
VI - 6	Sexual Intercourse	140
VI - 7	Perceptions of Peer Behavior	141

I. EXECUTIVE SUMMARY

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II. RESEARCH QUESTIONS

Healthy for Life is a field test of a program which combines several prevention strategies which have shown promise in recent research (Dryfoos 1990, Klitzner 1991, Moskowitz 1989, Murray and Perry 1985, Pentz 1990, Tobler 1989). **HFL** is unique in that it addresses five high-risk health behaviors with one program. **HFL** seeks to influence positively the behavior of adolescents in the areas of nutrition, tobacco, alcohol and marijuana use and human sexuality. The program addresses these issues with consistent messages from a school component, a community component and a family component.

The primary research questions addressed by **HFL** are:

1. Does the **Healthy for Life** program lead to significantly improved health behavior among young adolescents when compared to the traditional health education approaches used in the control schools?

2. Does the **Healthy for Life** program produce significantly more favorable outcomes when delivered over a three-year time frame (grades 6 through 8) using "Age-Appropriate" segments than it does when intensively delivered in one semester in seventh grade?

III. PROGRAM DESCRIPTION

A. THEORY BEHIND HEALTHY FOR LIFE

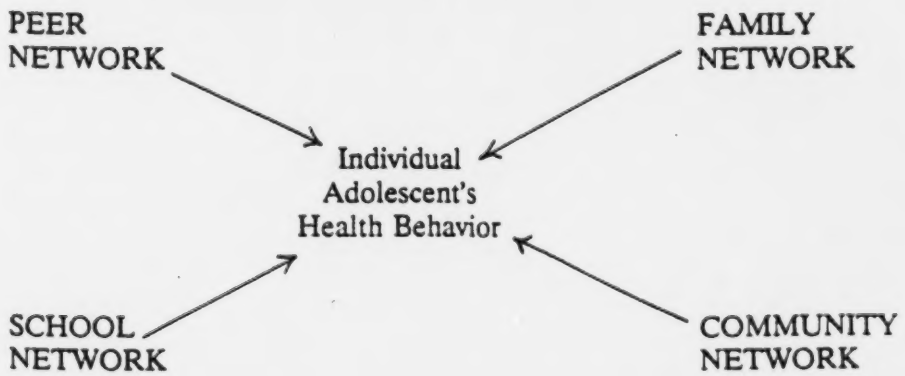
The **Healthy for Life** program and curriculum stem from our understanding that an adolescent's health behavior is determined, in large part, by social influences. The behaviors covered by **HFL** - eating, drinking alcohol, smoking or chewing tobacco, using marijuana and sexual activity - all occur, by and large, in groups. Individual adolescents are heavily influenced by their perception of the social norm of the immediate situation. This is a natural result of the agenda of adolescence: to grow independent of the family. This process involves searching for a place in various social groups and investigating different social identities. We cannot ignore the fact that all of the health behaviors addressed by **Healthy for Life** have significant social meaning to the youth involved.

Healthy for Life has the overall goal of providing adolescents with the social competencies necessary to handle the social situations where high risk behaviors are expected by others. It also communicates to the students, in ways with which they can identify, a specific set of messages or objectives regarding the health behaviors addressed.

Besides being affected by peers, adolescents are greatly influenced by other social networks. Families are still enormously important, especially in our case, as purveyors of values about these issues. School and community norms also have a powerful influence on middle school students (Bry 1983, Nader 1983, Perry 1988, Sexter 1984). **Healthy for Life** uses these multiple social networks to influence the health behavior of the students. Parents, teachers, leaders of adolescent peer groups, community youth leaders and key community leaders all communicate a consistent set of HFL messages to young adolescents throughout the program. Our aim is to establish healthy behaviors as the norm within each social network.

FIGURE III-1:

PROGRAM INFLUENCES ON THE ADOLESCENT'S SOCIAL NETWORKS



The Social Influences Model of adolescent health behavior constitutes the theoretical foundation of the **Healthy for Life** program. Simply put, this model acknowledges that teens make health choices based on the social meaning the particular behavior carries in distinct social settings. Particularly with young adolescents, ages 11-14, these choices have little to do with the teen's perception of his or her "health" or their knowledge about health topics. The sum total of the group present, the location, the perceived meanings or social norms, and the costs/benefits gained from a particular behavior influence teens as they go about the natural agenda of adolescence: growing independent. In their search for identity and belonging, and with their insatiable curiosity and energy, these factors are especially powerful during this developmental stage surrounding puberty.

Decisions about the health behaviors posing the greatest risk for young adolescents - eating, smoking or chewing tobacco, drinking alcohol, using marijuana, and sexual activity - all conform to the Social Influences Model. By and large, these behaviors occur in groups, even if the group numbers only two as with most teen sexual activity. Again, the entire

ecological system of the group setting carries the power over the teen's choices. The overall goal of **Healthy for Life** is to equip adolescents with the social competencies necessary to manage social situations in which high risk behaviors are expected and rewarded by others. The program also communicates a specific set of positive messages relevant to the daily world of young teens about the health behaviors addressed.

Four principal networks comprise the social influences on a young adolescent:

1. **The Family Network** – families are still extremely important to young teens and motivate them in two primary ways: as purveyors of values and as role models. The weight carried by the family shifts from heavy to moderate to light as the child negotiates the entire span of adolescence.

2. **The School Network** – schools hold most young teens captive for 8-10 hours everyday. By virtue of this time differential and because of the distinct **culture** of every school building, the explicit and implicit meanings attached to health behaviors via words and actions, rewards and punishments, literally bombard the adolescent.

3. **The Peer Network** – as children pass through sixth, seventh and eighth grades, peers vie with the family for first place in the social influences model. The prevention field has known for a long time that peer substance use is one of the strongest predictors of an individual child's use. The essence of this correlation lies, once again, in the set of social behaviors required for membership in the peer group. The leaders of the peer group continuously model these behaviors; they also monitor, albeit informally, the other group members. Viewing the peer group as a culture, there usually exist strong sanctions to protect the group identity at the expense of individual preferences.

4. **The Community Network** – children are constantly exposed to both the behaviors practiced by adults in their community and the system of regulations, overt and subtle, relevant to health risk behaviors legitimized by the community. To think that providing students with a health program in school will counteract the force of this pervasive community influence is sheer folly. Double messages undermine the best intentioned programs and teachers. Over the long haul, this fourth network may carry the most potent influence of all. Yet until recently, it has been virtually ignored by prevention programming for middle schoolers.

Healthy for Life penetrates these four networks with four distinct yet inter-related program components. The following is a blueprint of these four components with their specific research interventions.

B. HFL SCHOOL COMPONENT

In order to answer our original research questions, we designed two versions of the **Healthy for Life** curriculum. Both versions embody the most promising prevention strategies

from other successful in-school programs. However, since some of these findings are in direct contradiction to one another, particularly those dealing with the developmental uniqueness of young adolescents and their learning styles, testing two versions allowed us to isolate and examine those contradictions.

1. The Age-Appropriate Version

The **HFL** Age-Appropriate (AA) curriculum provides 20 lessons to one cohort of sixth graders, 19 lessons to that same cohort of students as seventh graders, and 19 lessons to that same cohort as eighth graders. The lessons are delivered in sequence everyday for four weeks to the entire grade. We designed the lessons for a 43 minute class period; in actuality, class periods varied from 39-50 minutes in our treatment schools. Each lesson consists of 1-4 activities, each with a specified time allotment. Each grade's four week segment ends with a "Special Event" designed to celebrate the students' completion of **Healthy for Life** in a fun, commemorative manner.

We created the **HFL** curriculum with ease-of-use and program fidelity among our top priorities. Two educators delivered **Healthy for Life** in the classrooms: one was a health-certified teacher hired by the project and sent out to each field placement; the other was a person from the local school district, most often a teacher, but occasionally a guidance counselor or school nurse. From the inception, the curriculum was conceptualized as being co-taught; the style and layout of the lessons facilitate this approach. We designed the lessons so that everything teachers needed to be successful appeared on the pages in front of them: each activity's goals and objectives, a detailed description of each point to be made to the students, discussion questions, all handouts, assignments, etc. for the students, a list of the materials needed for the lesson, and a summary of the lesson's main point. The 400+ page curriculum was packaged in three separate binders; a distinct color code was used for all materials relevant to each of the three grade levels. Preceding the lessons was background information on the topics covered by **HFL** so that a local district teacher from virtually any discipline could effectively co-teach the program. Some of our best co-teachers were from the math, computers and science fields.

We also designed the **HFL** curriculum to be cumulative and sequential. As students progressed through the three middle grades, they developed and perfected skills that built on their experiences in the previous grade. Further, the topics are addressed at the time in the average adolescent's life when they are most salient. For example, tobacco is covered heavily in sixth grade while dating and riding in a car with an impaired driver appear in eighth grade.

The curriculum utilizes, almost exclusively, the eight teaching strategies proven most effective in the health promotion field for young adolescents **and** in addressing their unique developmental and learning needs. The common thread among these strategies is that they are congruent with the Social Influences Model. Since evidence is very strong that knowledge alone does not motivate young teens to reject negative health behaviors, the **HFL** curriculum does not impart great bodies of information about our five topic areas.

Similarly, we did not use tests, quizzes or grades. We replaced these methods with an incentive system: if students completed every assignment, or were missing only one in a four week segment, they received a small reward such as an **HFL** T-shirt or simple hand-held calculator. To enhance positive peer pressure, our teachers posted giant Scorecards displaying each student's record of completed assignments in a visible place in the classroom.

The following eight teaching strategies have been identified from the current research on the prevention of high-risk health behaviors targeted by **Healthy for Life.** They are listed here in their relative order of importance based on the strength of the research findings.

2. Teaching Strategies

a. Social Inoculation

This strategy is analogous to medical inoculation. Just as we vaccinate young children by giving them small doses of a dangerous disease so they can build up an immunity, middle school students were exposed to social settings which carry heavy social pressure to engage in high-risk health behaviors. In the safe classroom environment, anticipated social experiences were simulated via role-plays, films and discussions. The **HFL** teachers trained students to:

* Recognize, understand and interpret the subtle nature of social pressure;
* Develop and practice a repertoire of assertive responses to unhealthy social pressure (also known as "peer refusal skills"); and
* Use peer refusal skills to the extent that the responses became automatic and comfortable for the students.

b. Peer Leaders

Peers often carry more credibility with adolescents than adults concerning the **HFL** topics. Peer Leaders elected by their classmates delivered portions of the **HFL** curriculum. **HFL** teachers trained three Peer Leaders per class to:

* Play key roles in scenarios used to practice peer refusal skills;
* Present important health messages in short lectures and discussions;
* Actively assist with classroom demonstrations; and
* Lead brainstorming sessions and small group activities.

By creating these highly visible opportunities for Peer Leaders, teachers facilitated role modelling of positive health behaviors both inside and outside of the classroom.

c. Short-term effects

Adolescents believe they are invincible and immortal. From the perspective of child development and psychology, they simply are not able to project themselves very far into the future. **HFL** teachers concentrated heavily on the immediate negative effects associated with the five targeted behaviors as opposed to the long-term health effects.

d. Advertising and Media Influences

It is clear to all good teachers that mass media and advertising techniques often convey negative health messages. **HFL** teachers instructed students to:

* Analyze and understand these messages;
* Recognize the significance of adolescents as a "target population" of potential consumers;
* Resist unhealthy media messages; and
* Create health promotion messages utilizing the same successful advertising techniques employed by the mass media.

e. Parent/Adult Interview

Families still carry significant influence over middle school children. Families and important adults also can be a source of conflicting health messages to adolescents. By employing the "interview" as periodic assigned homework, **HFL** teachers facilitated parent/adult - child communication about the five topic areas. This strategy encouraged the sharing of family values and ground rules so that behavior expectations were clearly understood by adolescents. The Family and Community Components of the **HFL** program complemented this teaching strategy.

f. Public Commitments

When people state an intention to behave in a certain way publicly, they are much more likely to follow through on that intention. In essence, they feel accountable to the group who hears the commitment. Throughout the curriculum, **HFL** teachers asked students to make public commitments to behave in healthy ways. **HFL** teachers also encouraged the peer group to become a support group by providing reinforcement for positive behaviors.

g. Health Advocacy

Like public commitments, people who actively promote healthy behaviors in the home and community are making a strong statement. By including health promotion events in the **HFL** curriculum, teachers encouraged students to become advocates for positive

behaviors beyond the classroom. Teachers also equipped students with the tools to become effective change agents. The Community Component of **HFL** complemented this teaching strategy by working with PTAs and other community groups to support the **HFL** program goals by sponsoring **HFL** events such as health fairs. In this way, students and adults worked together to begin building a community peer culture that overtly values healthy behaviors.

h. Peer Norms

Middle school students consistently over-estimate the number of their peers engaging in unhealthy behaviors. **HFL** teachers used the data from the **HFL** surveys taken in each school to illustrate that the actual number of adolescents engaging in the targeted risk behaviors was fewer than they thought. This effectively created positive peer pressure and encouraged the students to be part of the majority who chose healthy behaviors. The peer norm data for each school was given to only that school's teachers and we requested that it remain confidential.

3. Developmental Appropriateness

While the above description of the school component applies to the entire **HFL** curriculum, important differences exist across the three segments delivered in each grade. The sixth grade segment concentrates heavily on nutrition, using this non-threatening topic as an entree to the more sensitive subjects. Of the 20 days, nutrition claims seven, tobacco and alcohol combined seven, and sexuality three. Of the remaining three days, two comprise introductory lessons and the final day is the Special Event, the Wonder Food Contest.

Following one introductory lesson, the seventh grade segment covers nutrition for five days, tobacco, alcohol and marijuana for seven days, and sexuality for five days. The final day is once again the Special Event, in this case, the Fun Run.

The eighth grade segment shifts the emphasis to sexuality, as dating and intimacy become a major concern for most adolescents. Nutrition receives only three days' attention, substances are covered for seven days, and sexuality for eight days. The Special Event in this segment consists of a "Health Advocacy Event" selected, designed, organized and implemented by the students. This event may take place on the final day of **Healthy for Life** in the school, or it may be held on a weekend or in the evening several weeks or even months following implementation. Each of these events took on a character of its own, depending on the school and community in which it occurred.

4. Program Goals

While each lesson in each segment had its own daily goals and objectives, the behavior outcomes we hoped to influence dictated a set of project goals and objectives which propelled the entire curriculum. We worked hard to insure that teachers understood that these were to serve as their solitary focus, since many times they were tempted to

include other topics not being measured by our evaluation instruments. We included the following list in each binder, as well as repeating the project goals and objectives pertinent to that topic at the top of each lesson plan:

a. **Healthy for Life** For Life Project Goal:
To improve the health behavior of adolescents in five areas of major concern: nutrition, tobacco use, alcohol use, marijuana use and sexuality.

b. **Healthy for Life** Nutrition Unit Behavioral Goal:
Students will select healthy foods and eat more regularly.

c. Nutrition Unit Behavioral Objectives:
1. Students will decrease fat in their diet.
2. Students will decrease sugar in their diet.
3. Students will decrease salt in their diet.
4. Students will increase calcium in their diet.
5. Students will increase fiber in their diet.
6. Students will eat three meals a day.
7. Students will interpret media strategies used to sell food.
8. Students will make healthy food selections when not eating at home.
9. Students will avoid unhealthy weight loss diets.
10. Students will balance caloric intake with energy expenditure.

d. **Healthy for Life** Substance Unit Behavioral Goal:
Students will not use tobacco, alcohol or marijuana.

e. Substance Unit Behavioral Objectives:
1. Students will avoid substances that can cause physical and mental impairment.
2. Students will avoid substances that affect inter-relationships.
3. Students will interpret media strategies used to sell substances.
4. Students will interpret techniques of persuasion and use refusal skills.

f. **Healthy for Life** Sexuality Unit Behavioral Goals:
1. Students will not engage in sexual intercourse.
2. Students will use contraception when they become sexually active.

g. Sexuality Unit Behavioral Objectives:
1. Students will build friendships through communication and shared non-sexual activities.
2. Through **Healthy for Life**-facilitated family interventions, students will discuss appropriate sexual activities for their age and developmental level.
3. Students will avoid pregnancy and sexually transmitted diseases.
4. Students will interpret media strategies which use sex appeal to sell products.
5. Students will interpret techniques of persuasion and use refusal skills.

It is important to stress that we wrote the Age-Appropriate version of **Healthy for**

Life first, constantly guided by the barrage of physical and psycho-social transformations children negotiate between the ages of 11 and 14. Our final product emerged as a curriculum that is highly inclusive and directive, extremely easy to use for teachers of any discipline, loaded with a healthy variety of activities uniquely appropriate for middle school, and a lot of fun. It is a curriculum that facilitated, along with the presence of our project co-teachers, an impressive degree of program fidelity.

5. The Intensive Version

Some research indicates that a successful health promotion program for young teens must have 45-50 in-school sessions to yield positive behavior change. We created the Intensive (I) version of the **Healthy for Life** curriculum primarily to examine the validity of that finding within the Social Influences Model. Given the institutional nature of public school systems, this version also afforded us the opportunity to observe the program operating in a more similar fashion to traditional course offerings than the Age-Appropriate version.

The Intensive version takes the Age-Appropriate version, minus the seventh and eighth grade introductory lessons, and delivers it in one sequential twelve week block to an entire cohort of seventh graders. The lessons, format and packaging in each version are identical; the integrity of each grade level's material is maintained by translating them into Segments I, II and III, each still ending with its Special Event. In this way, our developmental approach to social competencies and skill building remains intact; what suffers is the developmental relevance of the topics.

We originally intended that our project teacher would co-teach with one local district teacher for the entire 12 weeks. While this occurred in the majority of cases, we did have some schools in which three different local teachers from three different disciplines co-taught one segment each.

It is important to note that any 12 week in-school program will encounter vacations, in-service days, and in our climate, snow days. In practice then, **HFL** was often a "presence" in a particular middle school for 13 or 14 weeks; a school semester lasts 18 weeks. This time factor in and of itself presented a stark contrast to the Age-Appropriate version, and offered us the opportunity to examine such issues as student and teacher fatigue.

6. Teacher Training

Even though the project hired only health-certified teachers, the unique nature of **Healthy for Life** necessitated a training period prior to field placement. We targeted 2-3 weeks as the ideal training period, but did not always attain this goal. While housed at the Wisconsin Division of Health with its highly restrictive bureaucracy and hiring procedures, our training periods fluctuated between 4 days and 2 weeks. Teachers receiving only 4 days of training obviously operated with a handicap during their first implementation. Once we

moved the project to the Pacific Institute for Research and Evaluation, we were able to provide the optimal three weeks of training.

For the local district teachers, we required attendance at a 2-3 day Training Program. We did everything possible to facilitate attendance, covering all expenses associated with teachers travelling from their communities to Madison including the costs of substitute teachers while they were away from their classrooms. We feel that this financial gesture was critical to our achieving just under 100% attendance. Schools were invited to send three people to the trainings at our cost; if fewer than three were scheduled to co-teach, we encouraged principals to consider future implementation needs and send other teachers, guidance counselors, school nurses, or administrators. Most of the time, they made excellent use of the training opportunities and our training groups numbered in the range of 25-40 participants.

We learned that a three day Training Program is the ideal. Occasionally, we adjusted to a two day session because of schedule constraints on the local teachers. Another goal was to provide training as close as possible to the beginning of the implementation; we achieved this goal most of the time by offering two trainings each year, one in early September and one in mid-January. In the semesters we conducted both the Age-Appropriate and Intensive versions of **HFL**, it worked best to offer distinct trainings for each version.

The Training Programs consisted of the following components:

1. In-depth exposure to the theoretical foundation of **Healthy for Life** and its unique approach to prevention of high risk behaviors among young teens;

2. An examination of the **HFL** teaching strategies and discussion of their challenge to methods most teachers had learned in the college preparatory programs;

3. An explanation of the research and evaluation component of **HFL** including the methods and instruments we would be using;

4. A complete orientation to the curriculum;

5. Demonstrations by our project teachers of a sampling of activities from the curriculum;

6. Preparation and demonstration of activities by the local district teachers;

7. Extensive exposure to the use and training of Peer Leaders in **HFL**;

8. An extensive discussion of teaching sexuality to middle schoolers, with guidelines and practice time allotted for the more challenging lessons; and

9. Individual meetings between each school delegation and the project teacher

assigned to their community to discuss logistics of implementation and troubleshoot as necessary.

In addition, we provided each local teacher with an extensive collection of written material to reinforce what they learned during the training and to serve as references for them. Co-teaching the program with a project staff member served, in essence, as on-the-job training. All of these training components emerged as necessary for a local teacher to continue program implementation on her/his own.

C. HFL PEER COMPONENT

The **Healthy for Life** Peer Component went hand-in-hand with the School Component. The two were integrally connected; one could not function without the other. Our Peer Component employs kids to teach other kids in their class through their words and actions. **Healthy for Life** Peer Leaders are <u>not</u> teachers' helpers. They are <u>not</u> peer helpers, used by many Student Assistance Programs to be listeners for students having problems. Peer Leaders are purveyors of credible social meanings that just so happen to include health behaviors. Even though the positive results of using same-age Peer Leaders to communicate health messages is a powerful research finding, this strategy was one of the most difficult for teachers to accept. Only in the most enlightened classrooms is the traditional notion of teacher as sole expert and authority challenged. Only in the most enlightened schools is leadership development of young people a top priority.

On the first day of each grade level or segment of **HFL**, students in each class elected three Peer Leaders. Prior to the election, the co-teachers led a discussion about the definition of leadership, the qualities of a good leader, and the concept of a "social" leader as opposed to an academic leader. They were also careful to explain exactly what duties the Peer Leaders would have during **Healthy for Life** as well as the amount of time they would need to spend in training sessions. Students voted for two Peer Leaders; it was perfectly acceptable for students to vote for themselves. Students elected were always asked if they wished to serve in private; we had very few students decline with the exception of one group of Gifted and Talented students at a particular site involved in a major project.

The majority of the Peer Leaders elected possessed the ability to influence other students' behavior, both in and out of the classroom. Indeed, they were social leaders. They were not always the students that the teachers would have chosen. They were not always the highest academic achievers or the most polite. In some cases, teachers had severe reservations or biases about students elected; in some cases, Peer Leaders were already involved in high risk behaviors. However, among hundreds of Peer Leaders over four years of implementation, we lost only one to suspension resulting from high risk behavior. Serving as a Peer Leader emerged as a high prestige honor which instilled a sense of responsibility and pride.

We created a comprehensive and demanding Peer Component. Peer Leaders participated in delivering a full 1/3 of the curriculum on one third of the days. Their tasks

fell into the following four broad categories:

1. Performing demonstrations such as stacking the number of sugar cubes contained in common foods on a table in front of the class and showing the effects of an artificial lung "smoking" a cigarette;

2. Leading brainstorming sessions and small group activities such as having the class list all the short-term effects of using tobacco and writing an advice column in groups of 4-5 students about dating and relationships;

3. Playing the key roles in scenarios and the initial role plays used to teach social competencies and peer refusal skills; and

4. Teaching, leading discussions and asking questions such as an analysis of a story about two teens who decide to become sexually active and the ramifications of their decision. This task clearly emerged as the most difficult for middle schoolers.

To facilitate their success, we designed an extensive set of training sessions for all Peer Leaders. The project teachers carried full responsibility for these sessions; local district teachers were welcome to attend but were not required to do so. The training sessions prepared the Peer Leaders for their tasks and responsibilities in the classroom one week at a time; practice time was also included whenever possible. Peer Leaders attended approximately five trainings per grade level or segment; the first week of segment I and II each required two training sessions.

Trainings were usually held early in the week during a regular class period lasting 39-50 minutes. At a few sites, all the Peer Leaders had the same study hall; this was the ideal time to schedule training sessions. At most sites, attending training usually meant that Peer Leaders would miss another class. In these cases, we rotated the time of the trainings so that other teachers did not become overly resentful. We discovered early on that holding training sessions during lunch, before or after school simply did not work.

We created a Peer Leader Packet and a set of note cards for each student. These materials provided a schedule of appearances in the classroom, a description of each activity and task(s) Peer Leaders would carry out, and notes on the points they were to make to their classmates. Peer Leaders relied on these printed aids to a varying degree when they were actually in front of the class; they certainly assisted in preparation. The three Peer Leaders from each class worked as a trio during the training sessions, deciding how they would present their activities and learning valuable cooperation, communication and negotiation skills.

From the outset, we realized we were asking a lot from middle schoolers. Ensuring the success of the Peer Leaders was a primary goal; the trainings and preparation were absolutely critical to attaining that goal. Performances in the classroom by the Peer Leaders varied tremendously; the nature of the task, the developmental level, maturity, sense of

humor and risk-taking ability of the student all emerged as factors. The co-teachers walked the fine line of allowing the Peer Leaders to fulfill their duties, not interrupting, interfering or correcting, but not ever letting them fail or feel humiliated in front of their classmates.

D. HFL FAMILY COMPONENT

We constructed the **Healthy for Life** Family Component to serve as a complement to the curriculum: the school component was able to function without it; with it, the school component was greatly enhanced and strengthened. This component aimed to facilitate communication between the young adolescent and one significant family member or other adult in their life about the **HFL** topics. We stressed this definition of "family" to our students; in many instances, safety or other critical issues made a parent or other immediate household member inappropriate as a "significant adult". Grandparents, aunts, uncles, neighbors, teachers, guidance counselors, principals all routinely served as "partners" for the Family Component during **Healthy for Life.** Linking each student with one consistent, available adult was the important step.

We hoped that implicit in communication about the **HFL** topics would be a clarification of family values and expectations regarding these topics and behaviors. In some cases, we attempted to force this clarification by the way we shaped certain materials. By and large, the significant adults reinforced the behavioral messages transmitted via the curriculum; this consistency of messages was, of course, our goal. Alcohol use by teens was the predictable exception, with varying degrees of tolerance in varying types of situations displayed by parents/adults. Hence, a definite double-message regarding alcohol use still reached a significant number of our young teens.

The Family Component contained three parts:

1) **A Parent Orientation Session** held at each school prior to the beginning of the school component. In some cases, principals scheduled these sessions as part of the traditional "Open House" or "Back To School Night". At other sites, a distinct evening meeting was held lasting about one hour. Two **HFL** staff members presented information about the program, the behavioral goals and objectives, showed parents the curriculum and family mailings, and answered questions.

2) **The Home Mailings** consisted of materials mailed directly to the home of each **HFL** student from our office at the beginning of each grade level or segment of the school curriculum. We re-mailed for changes of address and passed out packets in school to students whose families simply did not receive the mailings or whose mailings were discarded. We devoted enormous attention to the design, appearance, colors and readability of these materials, realizing that the key was to motivate the adult to open them. The Home Mailings contained:

   a) A staggered index brochure outlining the school program for that

particular four weeks, information for adults mirroring the lessons being delivered to the students, tips on communication and parenting, and a calendar of the "homework assignments" and family activities relevant to that segment;

b) Three short, fun activities to be completed by the child and adult and handed in for school credit mirroring the social competencies and peer refusal skills being delivered in school;

c) A bibliography of resources on the **HFL** topics;

d) Recipes and nutrition tips;

e) Brochures on topics such as drinking and driving, chewing tobacco, and talking to young teens about sexuality;

f) An excellent brochure from the Elks on peer refusal skills;

g) A "Family Fast Food Guide";

h) A **Healthy for Life** magnet or jumbo paper clip; and

i) A letter with the name, phone number and office hours of our Family Component Coordinator in case the adult had any questions or concerns.

A fourth home mailing consisting of a short letter arrived following the conclusion of the **HFL** school component thanking the adults for their participation and congratulating them for serving as important sources of support for healthy behaviors.

3) **The Parent/Adult Interviews** were "homework assignments" stemming from the school component and handed in for credit. Each interview focused on one of the **HFL** topics, was shared in class only to the extent the child and adult felt comfortable, and required an adult signature. All but one of these assignments came in classic interview format; the final one attempted to facilitate family rule-making and consequence-setting regarding our target behaviors. If the student completed all of these interviews **and** all three of the mailed family activities, or missed only one, they received a small incentive prize as described in the school component. No student was ever penalized or stigmatized for an adult refusing to complete the interviews or the mailed activities. As long as the adult signature was present and/or a note indicating their wish not to participate, the child received credit.

E. HFL COMMUNITY COMPONENT

We designed the HFL Community Component with two primary goals: 1) to create a highly visible cadre of community people actively working to reinforce the behavioral messages of the school component and, in so doing, 2) launch an attack on the pervasive double-messages about our target behaviors that most Wisconsin communities transmit to young people via overt and subtle cultural norms and values. Some communities already had initiatives under way in the area of alcohol and other drugs. Our intervention specifically included all five HFL topic areas. We also added the presence of an HFL community organizer to assist local communities for either 15 months at the Intensive sites or six months for each of the three years at the Age-Appropriate sites. We were very interested in examining the difference an "outside" community organizer might make, picking up such tasks as outreach, meeting facilitation, doing mailings, typing minutes, etc. Her presence also ensured that the HFL "agenda" was not diluted by competing interests or philosophical perspectives. Communities knew up-front the level of commitment our staff person could make, as well as the length of time she could work with them.

The Community Component contained two ingredients:

1. **A Healthy For Life Task Force:** The HFL task force was formed in the treatment communities that would permit us access to their parents and community leaders. In some cases, school officials blocked our organizing efforts because of volatile political issues; since we were totally dependent on them for operation of the school component, we had to respect their wishes. We followed a specific protocol in the establishment of our Task Forces:

   a. Extensive outreach to all sectors of the community with the goal of securing a representative from each, including parents, civic leaders, business people, law enforcement, the medical community, religious leaders, the media, and representatives from agencies serving youth. In some communities, Task Forces already existed albeit under different names and most often, only focusing on alcohol and other drugs. We determined if these groups were viable and amenable to working with the HFL "agenda"; if they were, our outreach efforts generally sought to expand the membership of the group to be truly representative of the community at large.

   b. Provision of the services of our community organizer for a specific period of time and to conduct the specific tasks listed above. In the Age-Appropriate communities, a community organizer worked with the Task Forces for approximately a six month period of time for each of the three years. Unfortunately, it was not possible for us to return the same staff person to these communities for all three years. In the Intensive communities, our organizer worked with the Task Forces for approximately 15 months in one block of time. These time periods coincided with the occurrence of the school component in that particular community. We attempted to keep the number of visits the community organizer paid to each site as uniform as possible; in practice, this number ranged

from 6 to 8. It is important to point out that along with personnel resources, the project was also providing financial resources to these fledgling Task Forces via equipment, duplication, mailing, and travel costs.

c. Commitment to follow the **HFL** "agenda" which meant inclusion of all five topic areas **and** an agreement to focus on two specific tasks during the time our community organizer was working with the Task Forces. We purposely chose this extremely directive approach to test an action-based model of organizing. The two specific tasks were (1) sponsoring a Health Advocacy Event, ideally in conjunction with the middle school students receiving **Healthy for Life** in school, and (2) working to either challenge a community policy that undermined healthy adolescent behavior in our target topics or highlight and bolster a community policy that reinforced the **HFL** behavior messages. Examples of the Health Advocacy Event included Health Fairs, Family Activity Days, and Workshops with guest speakers. Some of the targeted community policies were vendors selling tobacco and/or alcohol to minors and selective enforcement of laws governing alcohol use by minors. This second task was highly political in nature and often required Task Force members to challenge their neighbors and friends. This second task hits head-on the pervasive problem of community double-messages; it proved to be exceptionally difficult for Task Force members to confront and sustain.

2. **Media:** A media campaign carried out first by our community organizer and later, by local Task Force members to publicize the **Healthy for Life** initiative, student and Task Force activities, and create a barrage of positive media messages to counteract the preponderance of negative messages about our five target topics. We targeted all forms of print and non-print media existing in local communities; obviously financial constraints did not permit us to penetrate mainstream television although we did have some success with cable stations. The success of this strategy was greatly enhanced when a media representative also served as a member of the **HFL** Task Force.

Our Community Component received the least attention in our original proposal to NIDA, and the least amount of financial resources. Even under these limitations, we maintained a fairly consistent intervention and accomplished an incredible amount. The essential nature of this component prompted us to submit our second proposal to NIDA which was funded specifically to expand and examine the community component in greater detail.

IV. METHODOLOGY

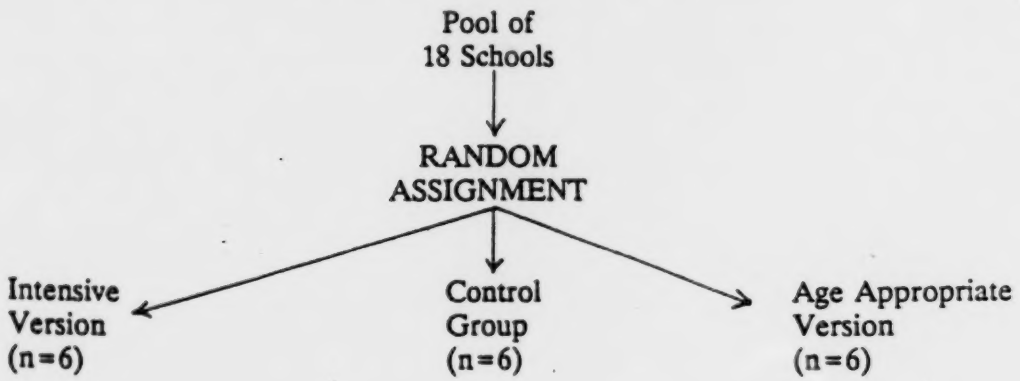
A. DESIGN

1. The Original Research Design

The original design (FIGURE IV-1) as described in our proposal to the National Institute on Drug Abuse involved the stratified random assignment of the 1988-89 cohorts of sixth graders from each of 18 schools to one of three conditions: the Intensive version, the Age Appropriate version or the control group.

In this design, the school is the unit of assignment and thus of analysis. Baseline surveys of the current student population (grades 6-8) in each of the middle schools provided data on substance use patterns and other health behaviors to use as a blocking factor. Originally, we intended to rank schools on substance use patterns, and then randomly assign them to a condition from groups of three schools which were contiguous on the ranking variables. This approach would enhance the comparability between design conditions on the dependent variables, over that which we could expect using simple random assignment.

FIGURE IV-1:
ORIGINAL RESEARCH DESIGN



As discussed in the section on theories of health education, the HFL experiment set out to test the differential effectiveness of two approaches to scheduling intervention, using identical content and strategies. Empirical results from past research provided support for both approaches--an intensive approach in which the health program is delivered sequentially in a concentrated period of time with a large number of lessons (in HFL's case, 58 lessons) as a full course, and an Age Appropriate condition in which the health program matches the developmental progress of students, with the same 58 lessons spread over several years to reinforce and build upon the prior years' learning.

The final seven treatment schools in the Age Appropriate condition have received the four week Segment I of the intervention in 6th grade during the 1988 - 89 school year, the four week Segment II during the 1989 - 90 school and Segment III, also four weeks, during the 1990 - 91 school year.

The final six treatment schools in the Intensive condition received the 12 week intervention, Segments I, II and III, during the 1989-90 school year.

The in-school curriculum, and the peer and parent components presented to the students were identical. However, the community component varied significantly across all conditions as would be expected.

The eight control schools were promised an in-school intervention for a subsequent cohort of students (during 1990-91) as an inducement to participation. Only six of these schools chose to receive the program.

A graphic representation of the complete research design used in the HFL evaluation is provided in Figure IV-2 on page 23.

2. Design Revisions

Several revisions to the research design for the Healthy For Life project were made during the first year of funding. The design changes were necessary to improve our ability to meet the scheduling needs of the schools which were available for inclusion in the project. The revisions maintained our emphasis on design rigor in testing the efficacy of the HFL model and improved the external validity of the project by more closely adhering to "real world" conditions.

The Independent Review Group which approved our proposal suggested that we add three schools to the design (one in each condition) to allow for possible attrition and to improve the statistical power of the design. We began recruiting schools with the intention of finding 22 schools to participate, 21 plus one additional school as a safeguard. From this pool, seven schools would be randomly assigned to each of the three conditions.

Recruitment of schools during the first year of the project consumed far more staff time than we anticipated. This problem threatened the viability of the project due to a shortage of performance sites. It became necessary to consider possible design alterations which would make involvement in the project more attractive to school administrators at potential sites.

FIGURE IV-2:

HEALTHY FOR LIFE RESEARCH DESIGN

SCHOOL YEAR:

CONDITION:	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93*
AGE-APPROPRIATE: Evaluation School Tx Community Tx (N = 7)	B R	O_6 S_1 C	O_7 S_2 C	O_8 S_3 C	O_9	O_{10}
INTENSIVE: Evaluation School Tx Community Tx (N = 7)	B R	O_6	O_7 S_{123} C	O_8	O_9	O_{10}
CONTROL: Control Cohort (N = 8)	B R	O_6	O_7	O_8	O_9	O_{10}

B = Baseline survey - a sample of 6th, 7th and 8th graders in each school. Spring of 1988.
O_i = "Observation" - a survey each fall of the 1988-1989 6th grade cohort; subscript denotes grade level.
S_i = School-based program. Each 4 week segment of the treatment is represented by subscript 1, 2, or 3.
C = Community-based program in experimental schools only.

* Tenth grade followup funded by the Robert Wood Johnson Foundation.

a. Recruitment and Selection of Schools

Because we wanted to use a rigorous research design and offered an extensive program, several challenging issues arose in our interaction with school districts and administrators. Our most pressing need was to recruit 22 middle schools whose administrators would agree to the necessary research constraints.

Phase One: December 1987 - April 1988

In order to entice school districts to participate in the **Healthy for Life** Project, we tried to make the school's involvement in the program as painless as possible. Our intention was that the only direct cost for the local school district would be a few long distance phone calls to our office. We paid for all of the training necessary for their teachers as well as all printing and supplies. At the end of the implementation, they had all of the materials, training for their teachers to continue the program and a year's experience with an **HFL** staff teacher. We also offered the schools that became part of the control group the assistance of one of our teachers to implement the program with a younger cohort of students, thereby offering them the full benefits of the **Healthy for Life** program.

In return, we required the school districts to agree to several points in writing. We developed eight criteria for a school to meet before we would accept them into our study. These criteria evolved from our research needs, budget constraints and program needs. The criteria were:

1) A student population in the research cohort of at least 100, but not more than 250. Our statistical power analysis assumed at least 100 students per school. Since we wanted our **HFL** staff teachers to see every student everyday to ensure program fidelity, schools of over 250 students were out of the question.
2) To save on our travel budget, we targeted schools geographically located in the southern one-third of Wisconsin.
3) Schools had to agree to random assignment to one of the three research conditions: Age Appropriate, Intensive, or control.
4) Participation in an annual survey through the fall of 1991 for the research cohort of students was required.
5) The ability to schedule the program everyday for all students in the research cohort according to the needs of assigned condition.
6) The local school district was required to provide a teacher to co-teach with a **HFL** staff teacher. Providing our own teachers gave us a consistent implementation of the program among all of the schools. The teacher from the local district learned first-hand how to implement the program from this co-teaching experience.
7) Provide for the consistent implementation of the program by agreeing to deliver the entire **HFL** curriculum as written, including the sexuality unit with contraception information.
8) Agree not to introduce any new health education curricula to the research cohort of students during the study.

With these criteria, we successfully recruited eight of the 22 schools needed for the study in five months of vigorous recruitment.

Phase Two: April - September, 1988

Within the first four months, it became clear that three of the criteria were unrealistic. We were asking too much of school administrators while offering what they perceived to be too little in return. Therefore, we modified three of our criteria, with number three being the most critical change. The modified criteria were:

1) A student population to serve as the research cohort numbering at least 70, but not more than 250.
2) Geographically located in the southern three-fourths of Wisconsin.
3) After self-selection to either Age Appropriate, or Intensive conditions, agree to random assignment to either treatment or the control group. (See explanation below.)

The other requirements remained the same. Using these relaxed criteria, we reached agreement with the additional 14 schools necessary.

The most common reasons given by school administrators who refused to participate in the study were: 1) The scheduling was impossible for them to accommodate. Our desire during phase one for total randomization exacerbated this issue. The two versions of the program demand very different scheduling, either 4 weeks in 6th, 7th and 8th grades or 12 weeks in 7th grade. 2) Dealing with human sexuality, especially contraception, presented an enormous political risk for some administrators. 3) Many schools had recently revised their curricula on substance use, human sexuality or nutrition. In some cases, they had recently purchased a new program and did not want to "waste" that investment.

Recruitment Procedures

We used the following steps to recruit schools for the study:

1) Presentations at two drug and alcohol conventions in Wisconsin.
2) Search for schools meeting size and geographical criteria using data from the Wisconsin Department of Public Instruction.
3) Outreach mailing to school district superintendents and middle school principals.
4) Follow-up telephone contacts with the principals on the mailing list.
5) Second mailings, as needed.
6) Telephone contacts to other decision-makers in the school district i.e. Directors of Curriculum and Instruction, Health Education Coordinators, Chairpersons of Health Advisory Committees, Health Teachers.
7) Third mailings, as needed.
8) Additional telephone contacts, as needed.
9) On-site presentation with slide-show.
10) Follow-up telephone contacts.

11) Additional visits, as needed.
12) Meetings with or presentations to School Boards, as needed.
13) Follow-up telephone contacts.
14) Verbal decision secured, usually via telephone.
15) Memo of Understanding between the school district and the Healthy for Life program signed.

b. Randomization of Schools

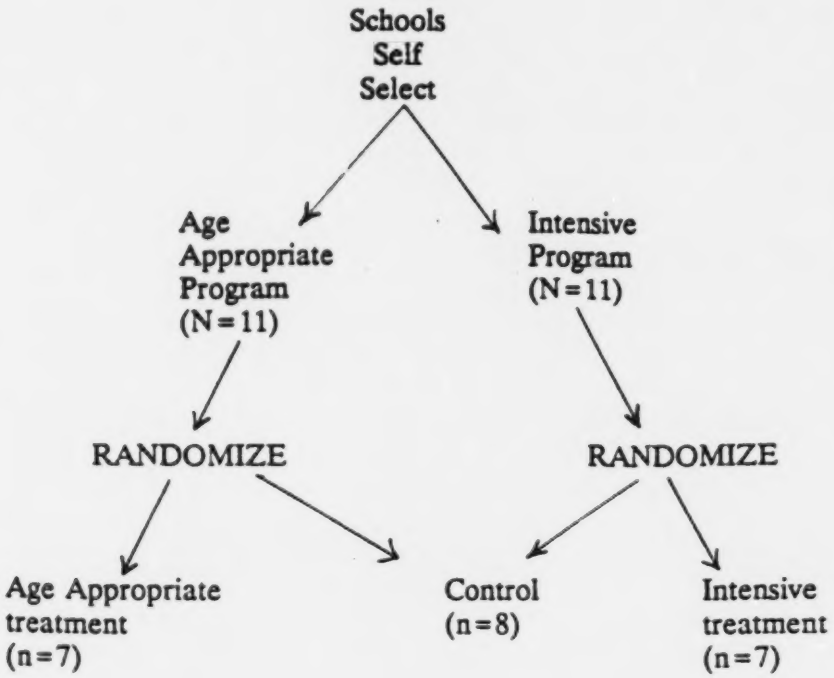
As discussed above, based on our interactions with school administrators during the initial recruitment, we concluded that their reluctance to participate was due to the problems associated with scheduling either the Age Appropriate or Intensive conditions. While interested in the **Healthy For Life** project, many administrators could not commit to a schedule that allowed for either four weeks out of 6th, 7th and 8th grades or 12 weeks out of 7th grade. However, many administrators were willing to participate if they could choose between the two treatment conditions based on their school's schedule. The possible assignment to a control group from a treatment modality was not a hindrance. The control condition was a delayed implementation of **HFL** rather than no program. A control school could choose to implement either the Intensive or Age Appropriate program or no program at all.

We compared the data on the schools which initially committed to the full randomization (N=8) to the other schools we had contacted. Those agreeing to full randomization were significantly smaller and more rural than others, and thus had much more flexibility in their scheduling. Similarly, only one multi-school district was interested in the project under the original research design. This indicated that the complexity of scheduling more than one middle school was a significant problem. Furthermore, the decision-making process in multi-school districts takes longer due the involvement of more decision makers. Our main conclusion was that it was often contingencies of scheduling which allowed or prohibited schools from participating in **Healthy For Life**. Other possible factors were the size of the school, the availability of resources and the degree of urbanization (Piper et al., 1989).

After consulting with other prevention evaluation research experts, we revised the design to deal with the scheduling issue while still preserving random assignment to experimental or control conditions. The design revision sacrifices random assignment to Age Appropriate versus Intensive program versions. Our revised design is presented in Figure IV-3.

FIGURE IV-3:

REVISED RESEARCH DESIGN



Facing the practical constraints to complete randomization, an alternative design became necessary. We implemented a two-step procedure allowing schools to select either the Intensive or the Age Appropriate condition, with the understanding that random assignment to the control condition was a 4 in 11 chance for each school. This revised design is a randomized control group design nested within two self-selected treatment options. The other design features such as the annual survey of the focal cohort, the process evaluation, and the comparison of Age Appropriate, Intensive and control conditions were retained. Only the process of assignment of schools to conditions was altered in this design modification.

B. DATA COLLECTION METHODS

1. Process Data

Process data were collected in a number of different ways to ensure that we would have an adequate description of what happened in the program. In addition, protocols were developed to provide a program description, assess program fidelity, discover unanticipated outcomes, and provide insight for the interpretation of the outcome data. Process measures included classroom observations, student and teacher interviews, student and parent

feedback questionnaires, and teacher logs.

a. Classroom Observations

An extensive observation schedule was maintained by the evaluation staff with some assistance from the program staff. Program staff used these occasions to interact with the HFL teacher on site, the local school district teachers and administrators. Their completed protocols were turned in to the process evaluator for analysis. A copy of this protocol is in Appendix B.

Classroom observations were conducted by a research specialist, the HFL program coordinator, and the principal investigator during implementations of the HFL program in both Intensive and Age Appropriate schools. The primary goals of the classroom observations were to determine curriculum fidelity during implementation, record student participation in classroom activities, and student and teacher receptiveness to major HFL strategies (i.e. peer leaders, role-playing, parent/adult interviews).

An average of three observations occurred during each 4 week segment in each treatment school. A log used to track which lessons had been observed revealed each lesson was observed at least once, with many lessons receiving three or more observations.

Observation times were arranged with the Healthy For Life teacher and were as unobtrusive as possible. Observers frequently sat at the back or side of HFL classrooms.

b. Interviews

Trained researchers used set interview protocols to interview students, teachers and school administrators at the end of each implementation to gather their interpretation of the program. A copy of the interview protocol is in Appendix B.

Student interviews revealed student perceptions of the curriculum, identified any immediate impact the implementation had on their behavior that could influence outcome data, and identified areas of the curriculum students considered as ineffective. Interviews occurred approximately 1-2 weeks after the implementation finished. Students were not identified on the interview instrument nor were they tracked from year to year. All interviews were voluntary and conducted by research or non-teaching, program staff.

Initially, 4-5 students per classroom, including one peer leader, were randomly chosen from volunteers. However, this process tended to produce a high number of students who favored the program. In later implementations, teachers were asked to suggest students for the interviews who were either highly participatory in HFL activities or had low to moderate involvement. It was expected this would provide a better balance of student opinion about the program. We wanted to hear a variety of opinions about HFL.

Each interview lasted 7-8 minutes and involved 5-6 probing questions. Students were asked to assess the curriculum in terms of its immediate impact or anticipation of future influence on their behavior, the effectiveness of specific strategies, familial reactions to the HFL program, suggestion for changes in the curriculum and their assessment of fellow classmates' response to HFL.

Teacher interviews were conducted by a research specialist with district teachers and HFL staff teachers after each curriculum implementation. Using a structured interview, district teachers were asked to assess the implementation in terms of student responsiveness, their perception of the effectiveness of the strategies, their co-teaching experience, and the overall program. Interviews were intended to assess district teacher attitude toward the health curriculum i.e. areas of resistance and acceptance, their personal investment in health behaviors, their participation in the school district's decision to implement HFL, and their previous experience with health curricula and prevention strategies.

Interviews with the HFL staff teachers took place at the end of the semester, rather than after each implementation. Having teachers discuss more than one school provided comparisons between implementations in areas such as school climate, school administrative support, team teaching, overall implementation success, problem areas, and fidelity issues. HFL teachers were also asked to rank implementations across schools in these areas.

c. Feedback Questionnaires

We also asked for subjective feedback from the students taking **Healthy for Life** and their parents. A copy of both of these instruments is in Appendix B.

Student feedback questionnaires were completed during the last week of the implementation. Again, participation was voluntary for the students. This was done at the conclusion of the Intensive implementations and after each 4 week segment of the Age Appropriate implementation. The questionnaire was primarily a satisfaction survey, where students answered questions to a Likert scale. This questionnaire revealed how positively students received the program overall, if students thought the program was helpful, and student perceptions of familial reactions to HFL. This questionnaire did not tell us why students liked or disliked the program or what was or was not helpful.

Furthermore, the questionnaire was anonymous and voluntary. Student were not tracked and this questionnaire will not be cross-referenced to individual student outcome data.

Parent feedback was gathered via a mailed, anonymous questionnaire regarding the **Healthy For Life** program. This questionnaire was mailed to parents of 8th grade Age Appropriate students and 7th grade Intensive students, three months after the implementation in their school. Included with each survey was a self-addressed return

envelope to facilitate a better response rate.

The questionnaire was mailed three months after the end of the implementation to give parents the opportunity to report any observed changes in their child's behavior. The parent feedback survey asked parents to assess the usefulness of family activities assigned during implementation, the level of parent's participation in HFL coordinated school and community meetings, and parent recommendations for program changes.

d. Teacher Logs

Teachers involved in delivering **Healthy for Life** were expected to complete detailed logs of each day's lesson. These were generated for each specific lesson (see Appendix B). The logs were analyzed to determine the number of lessons which were completed as written in the curriculum.

At the beginning of each implementation, district teachers and **HFL** teachers were given a teacher evaluation log to complete. The primary objective of the logs was to record as accurately as possible fidelity to the curriculum. This log was to be completed daily on each lesson. For each activity the teachers assessed on a likert scale whether objectives were achieved, the level of student interest, and if strategies were implemented as designed. There was also a section for descriptive assessment of the lesson in terms of problems encountered in implementing the lesson and recommendations for changes.

e. Cohort Health Education Experience

Data was collected to give us a clear picture of what health education experiences the students in **Healthy for Life** received before starting **HFL**, and concurrently with the program. The same data were collected from control schools. All schools were subsequently ranked on cohort exposure to health education, and the ranking variable used in the analysis. Detailed information on this particular data is included in Chapter V.

f. Community Mobilization

Data was collected on the level of community mobilization on health risk prevention issues pertaining to youth in each of the 21 sites. The unit of analysis was community prevention actions defined as collective, deliberate actions taken by members of the community to prevent adolescent health risk behaviors. All schools were subsequently ranked, and the ranking variable used in the analysis. Detailed information of this particular data is included in Chapter V.

g. Teacher Rankings and Accounts

The HFL teachers used a list of seven (7) variables to rate the implementation of each

of their schools. The process evaluator and the Project Director also rated each implementation. These ratings were used to rank each implementation. From 1 to 6 for the Intensive schools and from 1 to 7 for the Age Appropriate schools. A copy of the rating benchmarks are included in Appendix B.

In addition, the **HFL** teachers wrote accounts of the implementation in each treatment school from their perspectives.

h. Staff Records

Both evaluation and program staff maintained extensive written records of the program such as attendance at community meetings, the number of families completing family activities, the number of lessons taught as written and the attendance at health advocacy events. These data were all tabulated and appear at the appropriate places in the text of this report.

2. Outcome Data Collection

The ability of the **Healthy For Life** program to positively influence student behavior in the areas of nutrition, substance use and sexuality was quantitatively measured by a paper-pencil questionnaire. (See Appendix A.) This questionnaire was administered annually to individual students during regular classroom hours. A second measure validated self-reports of smoking behavior by determining carbon monoxide levels in expired air samples given by the students. Only students for whom parental consent was obtained participated in these outcome measures. Figure IV-2 presents the research protocol for administration of the baseline and annual questionnaires.

a. Parental Consent Procedures

Active parental consent was required for any student to participate in the **HFL** survey. Written consent was requested from all parents, but active verbal consent via telephone was accepted as a fall-back option (Moberg and Piper, 1990b). It was secured during the first and second years of the **Healthy For Life** grant, beginning when the test cohort of students was in the sixth grade. Parental consent applied only to the survey process. Parents who did not wish their children to participate in the **Healthy For Life** in-school program discussed other arrangements for their children directly with the school principals.

Parents were contacted approximately six weeks prior to the survey. Using school stationary, the principals and the research director co-signed a letter to parents, briefly introducing the **Healthy for Life** program and describing the survey process. A self-addressed stamped postcard was included for parents to return, indicating their consent.

Reminder postcards were sent to parents who had not returned their consent cards three weeks after the initial letter. If parents did not respond within 4-5 days of the survey, verbal consent was requested via telephone contact.

In subsequent years, parents were notified of the annual survey each fall and given the opportunity to withdraw their consent. Passive consent was assumed if parents did not contact either the school or the research team prior to the survey. Students were also informed of their option to refuse in part or all of the survey at any time during the survey process, even if their parents had consented. However, students were not allowed to participate in the survey process without parental consent.

Students who moved into the school district in 6th and 7th grades were asked, through the same procedures, to participate in the survey. Adolescents new to a school after the 7th grade survey did not complete the survey.

b. Tracking Students

With the first wave of data collection, a master list of the sixth grade students was created for each participating school. This list was updated annually by contacting schools at the beginning of every school year for a student mailing list. In comparing our database with the student lists, we were able to identify address changes, withdrawals, and non-consenting students. Also, several procedural checklists were utilized on actual survey days to trace changes in the database caused by absences, refusals, or moves.

All surveys were pre-coded with a school district code and a student identification number, along with other tracking information such as month, year, grade, and classroom section. In order to protect confidentiality of the student's responses, a scrambled variation of the student number was used on the survey. A small Post-It note with the student' name on it was also attached to its appropriate questionnaire. This note was later removed by the student. This process of using the Post-It note on the questionnaire ensured each student received his questionnaire without compromising privacy in his answers. The identification list, matching student names with their number and its scrambled variation, was maintained in a separate database from the data files which were stored and analyzed.

c. Survey Administration

School district participation in the survey process was maintained through early contact, flexibility in scheduling, and the ability to survey more than one classroom at a time. School principals were requested to provide classes from a subject area all students were required to attend. By surveying students through an already established academic class, we were assured access to the students with minimal disruption to the school setting. Prior to entering the schools, surveys were sorted into packets by classroom sections. On the outside

of each packet was a non-consent list indicating students who were not to be surveyed.

Each classroom was assigned a team of survey administrators from the HFL research team. One team member administered the questionnaire, while the other team member conducted the carbon monoxide test. Survey administrators began the survey process with a brief introduction of how to complete the survey, explanation of the carbon monoxide test, student's right to refuse, and confidentiality issues.

Whereas the questionnaire was developed to be optically scored, students received a #2 pencil with 'Be Healthy For Life' message on it, along with their questionnaire. This ensured the appropriate lead was used for completing the survey. Upon receiving their questionnaire, students were instructed to remove the small post-it note with their name on it.

The survey questionnaire was separated into two parts. After completing the inside of the face sheet, it was removed and students were individually asked to participate in the carbon monoxide test, following procedures described by Pechacek et al., (1984). This test was usually conducted in the hallways or in a separate room in order to provide privacy to the students. Student scores were recorded on the face sheet and placed in a envelope. After the test, students returned to the classroom to complete the remainder of the questionnaire. When the students returned their completed questionnaire to the survey administrators, it was void of any student identification codes. The face sheet and the questionnaire were later matched by using a lithograph code.

The outcome survey took most of the sixth graders all of a 42 minute class period to complete. Some students finished before the period was over and others did not complete it. It was written at a sixth grade level.

d. Instrumentation and Scaling

The most recent data on reliability of self reported surveys among adolescents indicates that self report is relatively reliable and valid for commonly used drugs (Babor et al., 1987; Oetting and Beauvais, 1990; Reinisch et al., 1991). In the HFL evaluation, analysis of our data for consistency over time and within individual surveys indicates acceptable consistency. For example, in comparing wave two and wave three answers to questions on "ever used" for cigarettes and alcohol, we find only 3% and 8% of students, respectively, contradicting their prior response for the questions on "ever used". Concurrently, 13% (and 18% for alcohol) apparently initiated these behaviors between the 7th and 8th grade surveys.

Measures: The appended survey, with supplemental questions added in the 8th and 9th grades, represents measures of the specific target behaviors as well as theoretical constructs relevant to the HFL model. Included are questions regarding past month and lifetime use of alcohol, cigarettes, smokeless tobacco, and marijuana, as well as past day and week tobacco use. Extensive items on food consumption are also included to assess the nutritional component of the program. Also included are questions on demographics, items on leisure activities, stressful events, circumstances and quantity of alcohol use, intentions

to use each substance in the future, perceptions of peer use, and perceptions of approval from others for use. The eighth grade version of the survey added items regarding other drug use, sexual activity and use of contraceptives. The ninth grade version included the supplemental eighth grade items plus items providing specific feedback on the HFL experience and subsequent application of HFL skills.

While much of our analysis is based on single item indicators (e.g., past month use of tobacco), we have also developed a number of multiple item scales to measure outcomes and related theoretical constructs. Many of these scales were adapted from our earlier project (Moberg and Piper, 1990). The scales which have been constructed using confirmatory factor analysis and reliability assessment, are described in an appended table.

The multi-item measures of health behavior include scales of Overall Substance Use, Smoking Behavior, Drinking Behavior, Marijuana Use, Smokeless Tobacco Use, Positive Food Choices, and Negative Food Choices. Theoretical and predictive constructs derived from the social influences framework include scales measuring Perception of Peer Drug Use; Social Exclusion; Health Self Efficacy; Family Relationships; Parental Supervision; Perceived Competence in the areas of Athletic Self, Intellectual Self, Sociability, and Physical Attractiveness; general Self Esteem (Rosenberg, 1965); and Susceptibility to Peer Pressure. Many of these scales have been adapted from our earlier and similar project, "Project Model Health" (PMH) conducted during 1984-1986.

e. Pilot And Baseline Development and Test of Scales

Along with a baseline survey incorporating many potential items for later inclusion in the ongoing HFL research (n=2,527), 120 subjects were included in a test-retest pilot study. This provided a good opportunity to observe the performance of potential scales in both small and large scale testing. Data derived from this pilot effort were used a) to further test the HFL theoretical model, b) to provide baseline data and feedback to each school district, c) to use as evidence of peer norms in each district, and d) to refine the scaling for the final fall survey instrument used annually. Importantly, the baseline survey results were also used to create a contextual variable of level of overall substance use in each school. Baseline values were used for blocking prior to random assignment as well as a covariate in most multi-variate analyses. (Additional details on the scales included in the outcome survey are contained in Appendix A.)

f. Assignment to Conditions

During the summer of 1989, we needed to assign schools to either of the treatment conditions or the control condition in order to plan the implementation properly. However, we only had 19 schools agreeing to participate in the project. Just 8 schools had committed to the Intensive version of **Healthy For Life**. We went ahead and made the random

assignments to conditions for the 19 schools with whom we had agreements. The three schools added at a later date were randomly assigned to treatment and control as a separate block. (We have checked our key analyses with and without inclusion of these three schools and have not found any bias of results due to the later addition of these three schools and the use of a proxy version of the covariate.)

The plan for blocked random assignment required the formation of blocks of schools which were similar on level of substance use. In order to create these blocks, a principal components analysis of all substance use items in the baseline survey was conducted and a principal component score for each student calculated. School means, weighted to reflect enrollment by grade, were calculated for each school. The results of the principal components analysis are presented as Table IV-1, p. 36. This score has been used extensively as a contextual variable in all of our analyses.

TABLE IV-1

**PRINCIPAL COMPONENT ANALYSIS OF SUBSTANCE USE ITEMS--
BASELINE DATA ON GRADES 6-7-8 IN 19 SCHOOLS (SPRING, 1988) (N = 2,527)**

SCALES	ITEMS IN THE SCALES	LOADING ON 1ST PC
SMOKING	Smoked cig's ever?	.396
	Like to try smoking cig's?	-.398
	How many cigs last week?	.047
	How many cigs last month?	.109
	Cig smoking in 5 years?	-.263
	(Subscale Alpha = .90)	
DRINKING	Drank alcohol ever?	.817
	Like to try alcohol?	-.787
	Past drinking behavior?	.784
	Times alcohol last month?	.545
	Drinking in 5 years?	-.736
	(Subscale Alpha = .95)	
SMOKELESS TOBACCO	Smokeless tobacco ever?	.245
	Times used smokeless tobacco last month?	.093
	Times smokeless tobacco ever?	.244
	(Subscale Alpha = .89)	
MARIJUANA	Marijuana ever?	.132
	Like to try marijuana?	-.192
	Frequency marijuana last month?	.046
	Marijuana in 5 years?	.245
	(Subscale Alpha = .83)	

Eigenvalue: 7.29
R-Square: 0.405

(prior cohorts of students) as well as from the pretest survey of students in the target cohort. In addition, we have collected supplemental data on each school and community regarding prior and concurrent health education programming.

1. Equivalence of Groups--Baseline Cohort

The initial analysis compared baseline scores on the principal component measuring substance use and intentions to use. These data are based on the prior cohort sample in each school, from which survey data were obtained to provide the blocking variable for the prospective random assignment. Results of this analysis, provided in the first panel of Table IV-3 (p. 40) indicate that the mean scores within each of the three groups of schools do not differ significantly on this measure. The lower panel of Table IV-3 (p. 40) presents similar data, using the pretest (sixth grade) survey of the actual cohort of students participating in the HFL experiment.

A number of additional variables were examined in the baseline sample of prior year sixth, seventh and eighth grade students for equivalence of groups. ANOVAs were calculated on arc-sine transformed binary measures of our target behaviors (smoking and smokeless tobacco use, alcohol use, marijuana use, and dieting to lose weight; ever and in the past month). Demographic variables (percent white, living in a city, with two parents, with parents with at least high school education) were also examined. We also used the Kruskall-Wallis Distribution-free one-way ANOVA to test for group equivalence. There were no significant differences on these measures among the schools assigned to the three conditions. However, these data are based on a prior cohort to the one of interest. The remaining analyses provide data on the equivalence at pretest (fall of 1988) of the experimental cohort of sixth graders who actually participated in HFL.

2. Equivalence of Groups--Experimental Cohort

While blocking for randomization was based on survey data from the prior cohort of students, the primary methodological concern was the equivalence of the experimental cohort of sixth graders who entered the participating schools in the fall of 1988. (Since the program started immediately in the sixth grade, we could not survey students directly prior to randomization.) The contextual measure, based on the prior cohort, served instead as a proxy for purposes of blocked randomization. Results of the randomization on key substance use measures are presented in Table IV-4, p. 41. Because the schools were the units randomly assigned to condition, we are using the school as the unit of analysis.

TABLE IV-3:

GROUP EQUIVALENCE AFTER ASSIGNMENT TO CONDITIONS:
ONE-WAY ANOVA ON FIRST PC SCORE
BETWEEN TREATMENT GROUPS

BASELINE SURVEY: (Grades 6-7-8)

Conditions	Cases	Mean Score	S.D.
Control	7	0.01	.10
A.A.	7	-.04	.16
Intensive	5	0.13	.22

Between Groups Sum of Squares	D.F.	Mean Square	F	Sig.
.089	2	.045	1.74	.207

Within Groups Sum of Squares	D.F.	Mean Square
.410	16	.026

FIRST WAVE SURVEY: Experimental Sixth Grade Cohort Only, Subsequent Cohort to (Baseline Subjects)

Conditions	Cases	Mean Score	S.D.
Control	7	-0.10	0.18
A.A.	7	0.02	0.24
Intensive	5	0.07	0.24

Between Groups Sum of Squares	D.F.	Mean Square	F	Sig.
.1121	2	0.06	1.17	0.33

Within Groups Sum of Squares	D.F.	Mean Square
.9134	19	0.05

TABLE IV-4:

EQUIVALENCE ON SUBSTANCE USE VARIABLES AMONG TREATMENT GROUPS: FIRST WAVE–SIXTH GRADE DATA

	# of Cases	Prop.	S.D.	ARC-SIN*	K-W*
Never tried smoking					
Control	8	.82	.09	.98	
A.A.	7	.78	.10	.90	
Intensive	7	.78	.05	.90	.62
Significance For Arc-sine Transformation: 0.40					
Significance For Kruskal-Wallis One-Way ANOVA: 0.73					
Never smoked last month					
Control	8	.96	.04	1.25	
A.A.	7	.95	.03	1.23	
Intensive	7	.95	.03	1.27	.29
Significance For Arc-sine Transformation: 0.83					
Significance For Kruskal-Wallis One-Way ANOVA: 0.87					
Never drank alcohol					
Control	8	.67	.07	.74	
A.A.	7	.62	.08	.68	
Intensive	7	.59	.11	.64	3.86
Significance For Arc-sine Transformation: 0.17					
Significance For Kruskal-Wallis One-Way ANOVA: 0.15					
Never used marijuana					
Control	8	.99	.01	1.50	
A.A.	7	.99	.01	1.45	
Intensive	7	.99	.01	1.43	3.30
Significance For Arc-sine Transformation: 0.36					
Significance For Kruskal-Wallis One-Way ANOVA: 0.19					
Never smokeless tobacco					
Control	8	.95	.02	1.28	
A.A.	7	.90	.09	1.15	
Intensive	7	.91	.06	1.17	3.57
Significance For Arc-sine Transformation: 0.22					
Significance For Kruskal-Wallis One-Way ANOVA: 0.17					

*Arc-sin: Arc-Sine transformation of the original percentages.
**K-W: Kruskal-Wallis distribution-free one-way ANOVA and its chi-square value.

and present these data as proportions of students within the school reporting the specified behavior. Due to the binary distributions with many zero's (no) and relatively scarce one's (yes), the arc-sine transformation is used and ANOVA conducted on the transformed values. We also applied the Kruskall-Wallis distribution free one-way ANOVA to the data as an alternative approach (Marascuilo and Serlin, 1988). As is evident in Table IV-4, the groups of schools did not differ significantly on any of these pretest measures of our key dependent variables.

Similar analyses were conducted for demographic variables. As Table IV-5 (p. 43) indicates, there were two significant between-group differences. The Intensive condition had a significantly lower proportion of white students (91%) than did the Age Appropriate and control conditions (94% white in each group), $p = .05$ (or .07). The control schools differed from the two treatment conditions in the proportion living with two parents (78% versus 72%; $p = .05$ [or .06]). The groups of schools did not differ on percent living in a city/town, or on the percent whose parents had at least a high school education.

A final analysis (Table IV-6, p. 44-45) examined several scales used in the analysis. Scales measuring positive food choices, alcohol use, smoking, smokeless tobacco use, and self esteem were analyzed. For these continuous measures, a two-way analysis of covariance was used with the treatment group and original block as factors and the school's principal component score from the baseline survey as the covariate (Maxwell, Delaney and Dill, 1984).

As indicated in Table IV-6, p. 44-45), there are no significant differences due to treatment group assignment on these measures. The blocking itself was also insignificant as a factor. However, the covariate (principal component measuring substance use levels) derived from the baseline survey is significantly related to the school's mean score on each of these scales. This points to an important finding of the HFL project--the power of contextual effects in determining student behavior.

As part of the HFL evaluation, data were also collected to develop a "health education profile" for students in the experimental cohort in each participating school. Key school district staff were interviewed to collect this information. These data capture the intensity of exposure to health education and developmental guidance curricula in grades K-8. A summary ranking was created from these data to use as a covariate in our analysis. A Kruskall-Wallis one-way ANOVA indicated there was not a significant difference between conditions on this measure ($H = 0.850$, 2 d.f.). These results provide additional evidence of group equivalence at the level of participating school. Prior and concurrent exposure to other health education, prevention and developmental guidance curricula in the participating schools did not differ between experimental groups.

Our findings from the baseline and pretest surveys show that the three groups of schools are initially equivalent on alcohol, tobacco, and marijuana use. They are also equivalent on several scales measuring relevant health attitudes and behaviors. Considering

TABLE IV-5:

DEMOGRAPHIC EQUIVALENCE OF TREATMENT GROUPS:
FIRST WAVE–SIXTH GRADE DATA

Variables	# of Cases	PROP.	S.D.	A-S*	K-W**
Percent White					
Control	8	.94	.02	1.24	
A.A.	7	.94	.01	1.24	
Intensive	7	.91	.04	1.16	5.26
Significance For Arc-sine transformation: 0.05					
Significance For Kruskal-Wallis Chi-Square: 0.07					
Percent living in city/town					
Control	8	.65	.19	0.73	
A.A.	7	.66	.23	0.77	
Intensive	7	.69	.19	0.83	0.00
Significance For Arc-sine transformation: 0.84					
Significance For Kruskal-Wallis Chi-Square: 0.99					
Percent living with two parents					
Control	8	.78	.02	0.90	
A.A.	7	.71	.08	0.80	
Intensive	7	.72	.06	0.81	5.52
Significance For Arc-sine transformation: 0.05					
Significance For Kruskal-Wallis Chi-Square: 0.06					
Percent fathers with high school education					
Control	8	.65	.12	0.72	
A.A.	7	.64	.08	0.69	
Intensive	7	.68	.11	0.76	0.59
Significance For Arc-sine transformation: 0.71					
Significance For Kruskal-Wallis Chi-Square: 0.74					
Percent mothers with high school education					
Control	8	.62	.10	0.67	
A.A.	7	.63	.05	0.69	
Intensive	7	.64	.11	0.70	0.66
Significance For Arc-sine transformation: 0.83					
Significance For Kruskal-Wallis Chi-Square: 0.72					

* Arc-sin: Arc-sine transformation.
** K-W: Kruskal-Wallis distribution-free one way ANOVA and its chi-square value;

TABLE IV-6:

GROUP EQUIVALENCE: EXPERIMENTAL COHORT OF SIXTH GRADERS
(Two Way ANCOVA of Selected Scales with Treatment Group and Block as Factors Using 1st PC for School as Covariate)

	BLOCKS						
	1	2	3	4	5	6	
Positive Food Choices							
Two Way Cell Means by Block:							
Control	16.2	16.3	16.7	16.3	16.6	16.5	
A.A.	17.0	16.3	15.7				
Intensive				16.8	16.4	16.3	
Two Way Ancova:		**DF**	**MS**		**F**		**SIG.**
Covariate (1st PC score)		1	1.04		5.16		.05
Main Effects:		7	0.19		0.92		.53
Treatment Conditions		2	0.22		1.07		.38
Blocking*		5	0.17		0.86		.54
Two-Way Interaction		4	0.22		1.07		.43
Drinking Behavior							
Two Way Cell Means by Block:							
Control	7.8	7.4	7.4	8.3	7.2	6.7	
A.A.	7.4	8.5	7.9				
Intensive				8.0	9.2	7.9	
Two Way Ancova:		**DF**	**MS**		**F**		**SIG.**
Covariate (1st PC score)		1	14.38		313.6		.00
Main Effects:		7	0.03		0.7		.70
Treatment Conditions		2	0.05		1.0		.41
Blocking		5	0.02		0.5		.75
Two-Way Interaction		4	0.00		0.1		.98
Smoking Behavior							
Two Way Cell Means by Block:							
Control	7.4	8.1	9.5	8.5	8.8	7.7	
A.A.	8.0	8.8	8.9				
Intensive				8.3	9.1	8.3	
Two Way Ancova:		**DF**	**MS**		**F**		**SIG.**
Covariate (1st PC score)		1	1.56		6.1		.04
Main Effects:		7	0.42		1.6		.25
Treatment Conditions		2	0.05		0.2		.83
Blocking		5	0.56		2.2		.15
Two-Way Interaction		4	0.20		0.8		.57
Smokeless Tobacco							
Two Way Cell Means by Block:							
Control	4.2	4.1	4.5	4.6	4.5	4.4	
A.A.	4.4	4.9	4.7				

Intensive				4.4	5.3	4.4	
Two Way Ancova:			**DF**	**MS**		**F**	**SIG.**
Covariate (1st PC score)			1	3.12		44.67	.00
Main Effects:			7	0.07		1.03	.47
Treatment Conditions			2	0.43		.61	.56
Blocking			5	0.84		1.20	.38
Two-Way Interaction			4	0.04		0.56	.70
Self Esteem (Rosenberg)							
Two Way Cell Means by Block:							
Control	29.5	29.1	28.4	28.5	28.9	29.2	
A.A.	29.0	28.7	28.7				
Intensive				29.1	29.0	28.9	
Two Way Ancova:			**DF**	**MS**		**F**	**SIG.**
Covariate (1st PC score)			1	0.43		5.94	.04
Main Effects:			7	.11		1.41	.31
Treatment Conditions			2	0.13		1.71	.24
Blocking			5	0.10		1.28	.35
Two-Way Interaction			4	0.13		1.62	.25

NOTE: The three schools added after the baseline measure and initial randomization are included by estimating the covariate score and block from 6th grade data for the experimental subjects themselves, rather than deriving these from prior cohorts in the school as for the initial 19 schools.

demographic characteristics, the groups are also essentially equivalent. The only exception is the percent of white students and the percent living in two parent homes in the experimental cohort. The Intensive condition had a significantly ($p=.05$) lower percent of white students than the other conditions, and the controls had a significantly ($p=.05$) higher percentage of students who lived with two parents than did either treatment condition. These results apply whether the school ($n=21$) or the individual student ($n=2,500$) is the unit of analysis.

These data demonstrate that the design combining self selection to alternative treatments followed by stratified random assignment to a control group is a viable alternative to total randomization. The addition of three schools selecting the Intensive condition after initial assignment, did not significantly alter group comparability. We have met the intent of randomized designs by maximizing initial equivalence of treatment and control groups.

A major benefit of this design is that we are not forcing schools to rearrange their schedules in a disruptive and artificial manner. Instead, schools chose the program modality which best fit their scheduling patterns and was least disruptive. Thus, the revised design more closely reflects the "real world" implementation which would occur on a wider scale in the future. Our data will reflect the effectiveness of HFL in schools likely to adopt the model because it fits their scheduling needs. A broader and more representative range of middle schools is participating (larger cohort size, urban as well as rural) than was possible under the original plan. The external validity of the research is thus enhanced.

With this design, the comparison of the two treatment conditions to the control condition remains uncompromised. The group of control schools, selected at random from the Age Appropriate and Intensive pools of participating schools, is representative of the entire pool of schools involved in the study. Each school in the initial pool approximately had an equal chance of assignment to the control condition. Thus, analysis of the overall treatment effect of the HFL program was not affected.

Self selection bias is a potential threat to the internal validity of results on the relative effectiveness of the two program versions. The original design reduced this potential problem by total random assignment to treatment condition. Outcome results may be confounded to the extent that the schools selecting the Age Appropriate program differ from those selecting the Intensive version on factors related to the dependent measures. Differences unrelated to the dependent measures are not of significant concern as confounding factors.

Another possible bias is that the eight schools which initially agreed to the full random assignment may systematically differ from those which agreed only to one treatment condition. To eliminate this confound, we evenly divided the schools initially agreeing to the full design between the two conditions. Four of them were in the Intensive pool and four were in the Age Appropriate pool.

The major known difference between schools selecting the Age Appropriate versus the Intensive version of **HFL** is the contingency of scheduling. For example, several schools already had a full semester 7th grade health course or a rotating elective course which could be partially replaced by **HFL**. Others had no full semester or 12 week scheduling slot available, but could easily find four weeks per year. The sharing of staff between schools prohibited several schools from committing to the fully randomized design. Many school districts wanted to maintain consistency between their separate schools, which our fully randomized plan did not allow. Thus, the issues related to scheduling emerged as the largest impediment to implementation of our original design, and would interfere with any large scale implementation of the **HFL** curriculum.

Design and analysis remedies which will lessen the impact of any of the possible confounds discussed above are available. The random design used blocking on the best predictor of our dependent measure--prior cohort (contextual) level of the focal behaviors, as reported by prior students in the participating schools. Where other possible confounding variables predict our outcome measures, blocking on school-level baseline data distributes the effects evenly and thus controls for these factors. The original baseline value of the blocking variable, on the level of school, will be used as a covariate in analysis of program effects. Coding for other health curricula will also be entered as covariates in statistical models to control for their existence and to estimate their influence on **HFL** outcomes. As our results indicate, however, there was no significant between-group difference in rankings of exposure to health education curricula between experimental groups.

Additionally, pretest data on each student in the experimental cohort have been collected. These data will be used as covariates to adjust for possible preexisting differences between groups which are detected on the pretest. Finally, we will try to further model the selection process by which schools choose the Age Appropriate or the Intensive condition. Variables which emerge from this analysis will be included in statistical analyses of the outcome data.

With the revised design, the **HFL** program modalities are being tested only in those schools willing to consider that option, rather than asking schools to accept a program modality which does not fit their scheduling. The blocking approach was retained to enhance the random assignment to treatment and control conditions, within each modality. Finally, available data and statistical analysis will allow additional covariance adjustments to compensate for any remaining preexisting differences between groups on the dependent measures or on other variables which may have influenced the selection to modality.

Analysis of the first year's (sixth grade pretest) survey data aggregated to the level of school yields no significant differences between conditions on any measures of the **HFL** dependent variables, including the tested prevalence rates. Introduction of the composite baseline substance use variable (used originally for blocking) as a covariate will provide further adjustment for possible baseline differences between schools. Thus the combination of design features and statistical controls is adequate to overcome validity threats in the

revised design.

In summary, the revised design is a modification which does not threaten the internal validity of the project. In fact, the external validity of the research is enhanced. Our solution to this problem of implementing experimental design is likely to be applicable to other evaluation studies as well.

3. Retention of Subjects

Our attrition rates, shown in Table IV-7 (p. 49), are remarkably low (less than 9% overall between each wave), with only minor variation by condition. Of those in the original sixth grade (wave 1) sample, only 14% were lost by the fall of eighth grade two years later. By the fall of ninth grade, a total of 19% from the original sample had been lost. Of the original sample, 79 percent (1,955) were retained through all four waves of data collection.

At the date of this writing (November, 1992), we are completing a fifth wave of data collection, surveying students as tenth graders. (This additional followup wave has been funded by the Robert Wood Johnson Foundation.)

Our human subjects committee approved a procedure which allows us to accept active verbal consent by telephone (Moberg and Piper, 1990). This increased our consent rate by about 20 percent over what would otherwise have been obtained. We also schedule a makeup date in each school to survey students who are absent on the survey date or whose parental consent is received late.

For the initial sixth grade survey (completed in the fall of 1988) we received a response from a parent of 96% of the students enrolled in the participating schools. Of those responding, 91% gave consent for their child's involvement in the survey process. Overall, including students for which we were unable to contact parents as "no consent," we obtained consent for 88% of enrolled students (2,528 of 2,889). Of those with consent, we successfully surveyed 98% (2,484 students, or 86% of all enrolled).

Results from the four annual waves of data collection are provided as Table IV-7, p. 49.

4. Measurement Issues and Variables

Both single items and composite scales measuring key constructs were used in the evaluation. Table IV-8 (p. 50) summarizes data on the final scales used in the analysis. The scales were assessed using confirmatory factor analysis, reliability analysis for internal consistency, and test-retest reliability. The column labeled "Alpha" gives the reliability coefficient for the final scale. The third column in Table IV-8, p. 50, reports the "Test-Retest Correlation

TABLE IV-7:

SAMPLE RETENTION BY EXPERIMENTAL CONDITION
FOUR WAVES OF DATA COLLECTION

	Age App	Inten*	Cntrl	Total
First Wave:				
Total Students Enrolled	923	917	1049	2889
Number Surveyed	846	759	879	2484
Percent of Enrollment Surveyed	91.7	82.8	83.8	86.0
Second Wave:				
Total number surveyed	849	800	970	2619
New students added to survey	75	119	156	350
Percent of First Wave Retained	91.5	89.7	92.6	91.3
Third Wave:				
Total number surveyed	828	741	924	2493
New students added to survey**	16	12	15	43
Percent of 2nd Wave Retained	92.7	88.9	91.2	91.0
Percent of First Wave Retained	86.5	82.6	87.7	85.6
Fourth Wave:				
Total number surveyed	749	690	839	2278
Percent of 3rd Wave Retained	89.0	91.4	88.4	89.5
Percent of 2nd Wave Retained	86.6	85.0	85.4	85.6
Percent of First Wave Retained	79.3	79.1	85.3	81.4
Present All 4 Waves	653	582	720	1955
Percent of First Wave	77.2	76.7	81.9	78.7

* Data on 59 additional students from one intensive school which withdrew from project after year one is excluded from this table.

** No students were intentionally added in wave 3. These may reflect ID alterations by students or clerical error.

TABLE IV-8:

COMPOSITION AND RELIABILITY OF SCALES

Scale	# Items	Alpha	Test-Retest R	Mean (sd)
A. Target Behaviors:				
Cigarette Use	7	.90	.62	12.6 (7.7)
Alcohol Use	6	.90	.67	12.1 (5.0)
Marijuana Use	4	.87	.38	5.0 (2.6)
Smokeless Tob. Use	4	.82	.59	5.6 (3.5)
Overall Substance Use	18	.93	.65	32.3 (15.3)
Pos. Food Choices	6	.53	.49	14.7 (4.6)
Neg. Food Choices	4	.79	.51	13.7 (4.3)
Freq. of Meals	2	.55	.39	8.9 (1.6)
B. Hypothesized Mediating Variables				
Perceived Peer Substance Use				
-Grade Norms	4	.81	.43	10.1 (2.9)
-Close Friends	4	.80	.54	5.3 (1.8)
Susceptibility to Peer Pressure	6	.58	.60	17.8 (2.6)
Disapproval of Substance Use by:				
-Parents	4	.88	.35	4.7 (1.8)
-Friends	4	.88	.52	6.7 (2.9)
-Personal	4	.88	.52	6.7 (2.8)
Parental Supervision	2	.68	.32	7.9 (2.0)
Family Relationship	5	.84	.61	15.8 (3.1)
Health Self Efficacy	4	.73	.48	12.8 (1.9)
Perceived Competence				
-Athletic	3	.70	.65	9.3 (2.0)
-Intellectual	3	.56	.57	8.9 (1.7)
-Sociability	9	.81	.63	28.0 (4.0)
Self Esteem	9	.82	.63	28.0 (4.0)
Stressful Events	20	.76	.30	2.8 (2.7)

* The test-retest correlation coefficient is reported for the control group only, linking wave 3 to wave 4 scores (i.e., 8th to 9th grade data).

Coefficient" for cases in the control condition only from grade eight to grade nine, indicating the stability of these scales (without intervention). The overall mean and standard deviation on the ninth grade testing occasion is also provided. Details on the composition and scoring of these scales is provided in Appendix A.

As is evident from Table IV-8, the scaled measures used in this study are generally reliable, both when internal consistency is examined and when test-retest performance is considered. The alpha coefficients for internal consistency range from a low of .53 to a high of .93, with the majority of the coefficients in the .80 to .90 range. This is definitely adequate for research purposes. The test-retest coefficients are more variable, largely because they are estimated based on one year between measurement points. Even with one year between measures, however, the test-retest correlations in the control group are relatively high--ranging from .32 to a high of .67, with most coefficients between .40 and .60. This indicates that the behaviors measured are related within individuals over time. In particular, the performance of our scales measuring the key outcome variables of cigarette use, alcohol use, and overall substance use are highly reliable. Our measurement of nutritional behavior has been less successful. A number of scoring approaches, several of which have been successful in past research (e.g., Moberg and Piper, 1990a; Rosander and Sims, 1981), were attempted and discarded due to lack of reliability; several items and sets of items have also been excluded from the analysis due to lack of reliability. The three retained scales were the most reliable of many attempts at scaling nutritional behavior given the items included in the surveys.

5. Use of Carbon Monoxide Testing

In addition to the self report items, we used portable CO Monitoring devices to generate an independent biologic measure of smoking behavior, and to function as a bogus pipeline (Pechacek et al., 1984; Murray et al., 1986). Data on this technique in our population has indicated that using CO as the "gold standard" significantly under-identifies students who are using smoking tobacco, compared to self report.

Table IV-9 (p. 51) indicates that students who admitted to smoking in the past 24 hours were more likely to have elevated CO results, but were also more likely to refuse the CO measurement, than were those not admitting smoking in past 24 hours. In general a cutoff of 8 ppm is indicative of recent smoking, while reading under this level may reflect ambient conditions. Most of the readings were at 4 ppm or less, so we used the 5 to 8 ppm category as an intermediate level of elevation which may or may not reflect recent smoking. Of the 1659 subjects producing CO samples but who did not admit to past 24 hour smoking, only 4 (0.2 percent) yielded clearly positive results on the CO device, and an additional 35 (2%) are in the intermediate range. Thus we rely on self reports for analysis of smoking behavior outcomes.

TABLE IV-9:

RESULTS OF CARBON MONOXIDE TESTING:
SELF REPORT COMPARED TO CO RESULTS--T4 SURVEY

CO Result:	Did Not Smoke in Past 24 hours	Smoked in Past 24 hours	Total
0-4 ppm	1525 (92%)	107 (54%)	1632 (88%)
5-7 ppm	35 (02%)	42 (21%)	77 (04%)
8+ ppm	4 (00%)	20 (10%)	24 (01%)
Refused	95 (06%)	30 (15%)	125 (07%)
TOTAL:	1659 (100%)	199 (100%)	1858 (100%)

6. Consistency of Self Report Data

One of our fundamental research tasks was to obtain reliable data on rather sensitive behavior (e.g., drug use and sexual behavior) through students' subjective self-reports. Test bias and quality of measurement thus concerned us from the beginning of the project. Before drawing any substantive conclusion from the HFL research, we need to answer two fundamental questions: (1) Did the students answer the survey questions honestly, consistently, and reliably? and (2) Is there any significant difference in measurement reliability among the three treatment groups? The first question addresses reliability in general, and the second one looks for evidence of test bias associated with the treatment, as compared to the control group. Both questions, however, require appropriate assessment of survey measurement quality.

Our effort involves two aspects: first of all, to find the inter-relation between items addressing the same domain of behavior, we conducted reliability analysis for different scales. The purpose of this analysis is to assess whether different survey items hold together well in measuring the common constructs they are meant to measure. These results, presented on page 52 (Table IV-10, p. 53), do not tell us whether the individual items themselves are reliable or not. The latter assessment can be obtained based on an assessment of logical response patterning. Analysis of the relationship between key items in the questionnaire, both simultaneously and over time, make certain answers illegitimate and thus reveal the internal inconsistency. For example, if someone answers "Never" to the question "have you ever used marijuana in your lifetime?", but said "yes" to another question "did you use marijuana last month?", we can be certain that the reliability of his or her answers to both items is questionable. Although this does not tell us the reason for the inconsistency, it does alert us to problems in measurement. For instance, if a high proportion of students give inconsistent answers, we should probably put less faith on any conclusions drawn from the survey.

Complete analysis of internal consistency has been conducted on items tapping the major substances HFL targets (alcohol, cigarette, marijuana, and smokeless tobacco) and across all the four waves. Three illustrative tables are given below. Table IV-10 gives the results comparing lifetime versus recent (last month) consumption of alcohol based on data from the fourth wave. The third row of the table represents illegitimate (inconsistent) responses: those students in this row reported no lifetime drinking, and yet they reported drinking last month. As can be seen, only a very small proportion of students (0.2%) gave inconsistent answers, and the three conditions do not show significant difference in terms of inconsistency (they are all about 0.2%), although the overall Chi-square value is significant, which may be attributed to large sample size. Table IV-11 (p. 54) gives the same results for self reported smoking. The third row in Table IV-11 reveals inconsistency in reporting smoking behavior. Only 13 students inconsistently report smoking behavior. The significant Chi-square can be attributable to other between group differences on the tables, in particular the higher rate of "quitting" among the students in the Intensive condition, and the slightly lower rate of past month smoking in the same group. (This is reflected later as a significant positive treatment effect for the Intensives.) Finally, Table IV-12 (p. 54) provides similar data on reported sexual intercourse. Here we find only seven students (0.3%) providing inconsistent responses.

TABLE IV-10:

CROSS-SECTIONAL CONSISTENCY OF SELF-REPORTED ALCOHOL USE BY CONDITION WAVE 4: LIFETIME VS. LAST MONTH DRINKING

	Control	Age Appro	Intensive	Total
No Lifetime Nor Last Month Drinking	297 36.9%	248 34.0%	192 28.3%	737 33.3%
Drank Lifetime but Not Last Month	273 33.9%	244 33.4%	262 38.6%	779 35.2%
Drank Last Month Not Lifetime	1 0.1%	2 0.3%	2 0.3%	5 0.2%
Drank Last Month & Lifetime	234 29.1%	236 32.3%	222 32.7%	692 31.3%
Total	805 36.4%	730 33.0%	678 30.6%	2213 100%
Statistical Test	Value	Prob.		
Phi (Chi-Square)	0.08	0.03		

TABLE IV-11:

CROSS-SECTIONAL CONSISTENCY OF SELF-REPORTED SMOKING BY GROUPS WAVE 4: LIFETIME VS. LAST MONTH SMOKING

	Control	Age Appro	Intensive	Total
No Lifetime Nor Recent Smoking	450 55.8%	399 54.3%	344 50.9%	1193 53.8%
Smoked Lifetime Not Last Month	144 17.8%	150 20.4%	181 26.8%	475 21.4%
Smoked Last Month Not Lifetime	4 0.5%	6 0.8%	3 0.4%	13 0.6%
Smoked Last Month & Lifetime	209 25.9%	180 24.5%	148 21.9%	537 24.2%
Total	807 36.4%	735 33.1%	676 30.5%	2218 100%
Statistical Test	Value	Prob.		
Phi (Chi-Square)	0.093	0.004		

TABLE IV-12:

CROSS-SECTIONAL CONSISTENCY OF SELF-REPORTED SEXUAL INTERCOURSE BY GROUP WAVE 4: LIFETIME VS. LAST MONTH SEX

	Control	Age Appro	Intensive	Total
No Lifetime Nor Recent Sex	636 81.1%	531 77.6%	501 76.6%	1668 78.6%
Had Sex Lifetime Not Last Month	56 7.1%	70 10.2%	61 9.3%	187 8.8%
Had Sex Last Month Not Lifetime	3 0.4%	3 0.4%	1 0.2%	7 0.3%
Had Sex Last Month & Lifetime	89 11.4%	80 11.7%	91 13.9%	260 12.3%
Total	784 36.9%	684 32.2%	654 30.8%	2122 100%
Statistical Test	Value	Prob.		
Phi (Chi-Square)	0.063	0.211		

A longitudinal check on inconsistency followed the same logic as done for the cross sectional check (Table IV-13 below). Here the key is to identify responses that are illogical or illegitimate OVER TIME. Focusing on the third and fourth waves of the data, students' responses may be categorized into three types: unchanged from wave 3 to wave 4; changes from wave 3 to wave 4 that are logical and legitimate; and finally changes that show inconsistency. The first two categories are not of concern, but the last is. Tables IV-13, IV-14 (p. 56) and IV-15 (p. 56) present the results. Two conclusions can be easily drawn from these tables: (1) overall, the proportion of inconsistent responses is small; (2) there are no significant differences among the three groups in inconsistency rates.

TABLE IV-13:

LONGITUDINAL CONSISTENCY BY CONDITION
FROM WAVE 3 TO WAVE 4: SELF-REPORTED DRINKING BEHAVIOR

	Control	Age Appr.	Intensive	Total
Unchanged Between Wave 3 and Wave 4	466 61.2%	435 61.9%	381 58.5%	1282 60.6%
Legal Changes From Wave 3 to 4	246 32.3%	220 31.3%	219 33.6%	685 32.4%
Inconsist	50 6.6%	48 6.8%	51 7.8%	149 7.0%
Total	762 36.0%	703 33.2%	651 30.8%	2116 100%
Statistical Test	Value	Prob.		
Phi (Chi-squared)	2.144	0.710		

TABLE IV-14:

**LONGITUDINAL CONSISTENCY BY CONDITION
FROM WAVE 3 TO WAVE 4: SELF-REPORTED SMOKING BEHAVIOR**

	Control	Age Appr.	Intensive	Total
Unchanged From Wave 3 To 4	531 69.1%	507 71.3%	486 74.0%	1524 71.3%
Legal Changes From Wave 3 to Wave 4	199 25.9%	175 24.6%	140 21.3%	514 24.1%
Inconsistent	38 4.9%	29 4.1%	31 4.7%	98 4.6%
Total	768 36.0%	711 33.3%	657 30.8%	2136 100%
Statistical Test	Value	Prob.		
Phi (Chi-Squared)	5.053	0.282		

TABLE IV-15:

**LONGITUDINAL CONSISTENCY BY CONDITION
FROM WAVE 3 TO WAVE 4: SELF-REPORTED INTERCOURSE**

	Control	Age Appr.	Intensive	Total
Unchanged From Wave 3 To Wave 4	582 83.3%	459 79.3%	472 82.1%	1513 81.7%
Legal Changes From Wave 3 To Wave 4	86 12.3%	91 15.7%	80 13.9%	257 13.9%
Inconsist	31 4.4%	29 5.0%	23 4.0%	83 4.5%
Total	699 37.7%	579 31.2%	575 31.0%	1853 100%
Statistical Test	Value	Prob.		
Phi (Chi-Squared)	3.958	0.412		

D. METHODS OF ANALYSIS USED

The preferred analytic technique in randomized pretest-posttest designs is the analysis of covariance (ANCOVA). A recent review and simulation by Olejnik and Algina (1985) has demonstrated that even with small samples and violation of assumptions, the parametric ANCOVA is robust and of superior power to nonparametric alternatives based on rank ordering, assuming high correlations of the covariate with the dependent variable. Thus our primary analytic technique has been to use the multiple regression equivalent to analysis of covariance with the operationally identical pretest measure of the dependent variable as the primary covariate (Reichardt, 1979).

An additional covariate has been added to all basic estimates of treatment effects. Since our random assignment process was from similar predetermined blocks, formed based on the contextual measure of level of substance use in the participating schools in the year prior to the start of the HFL project, this contextual measure is also included in all basic modeling of outcome. (Details on the calculation of this variable is provided in Chapter VI, Table VI-2 and associated text.) Based on work by Maxwell, Delaney and Dill (1984), the use of blocking in conjunction with ANCOVA is expected to adequately control statistically for remaining non-equivalence of groups due to the small but adequate number of schools assigned to the three conditions. Our analysis used the blocks themselves (in the form of dummy variables) as well as the contextual covariate and found that incorporation of the blocks was redundant once the contextual covariate was entered into the models. Thus we use this contextual covariate to capture the blocking and to control for school-level differences in substance uses.

Murray and Hannan (1990) describe our design as a "nested cohort design" for which the blocked ANCOVA design is appropriate. The dependent measures are the post-test scores and percentages, most significantly at the final point of measurement, for our primary hypothesis testing regarding intervention effectiveness against the control condition.

Since many of our outcome measures are dichotomous, we have estimated treatment effects using logistic regression for these variables, and ordinary least squares (OLS) for the continuous measures. This approach allows us to apply the same basic model to all outcome measures.

Thus our basic model for analyzing outcome is:

$$Y_4 = a + B_1 X_1 + B_2 Z_1 + B_3 D_{AA} + B_4 D_{INT} + e;$$

where:

Y_4 = *Time 4 (ninth grade posttest) value of outcome measure*

a = *intercept*

B_1 = *Regression weights (B's)*

X_1 = *Time 1 (sixth grade pretest) value of outcome measure*

Z_1 = *Baseline contextual measure of substance abuse in participating schools (Note that in three intensive schools added after the baseline, we had to estimate this covariate based on the sixth grade pretest of HFL students.)*

D_{AA} = *Dummy variable indicating school assigned to age appropriate condition*

D_{INT} = *Dummy variable indicating school assigned to intensive condition*

e = *error*

In this model, if the coefficient B_4 for D_{AA} is significant, it indicates a significant treatment effect for the age appropriate condition compared to the control schools. Similarly, if coefficient B_4 for D_{INT} is significant, it indicates a significant effect for the intervention condition compared to the controls. The model can also be estimated for an overall treatment effect by computing an overall treatment dummy and substituting this for the two condition indicators (D_{AA} and D_{INT}).

This model can be criticized for ignoring the repeated measures feature of our overall design. However, there are several reasons this analysis is considered as primary (repeated measures approaches have also been used in our analysis). Most significantly, the design (see Figure IV-2, p. 23) of the overall program implementation is such that, for the Age Appropriate subjects, only the 6th grade measure is a true pretest, and only the ninth grade data collection wave is a true post-test. The data collected in the fall of grades seven and eight are intermediate points occurring during program implementation. Thus a repeated measures analysis would be difficult to interpret in terms of program outcome, since it would not be clear at what point to expect treatment effects. For the Intensive condition, compared to the controls, a true repeated measures analysis with two before and two after measures is possible and was indeed conducted. The problem with this analysis, discussed in Chapter VI, is that it yields an inaccurate picture of treatment effects for the Intensive schools, making the overall outcome appear negative due to an immediately negative (T3) effect of the Intensive program on several variables which later (T4) attenuates. Another analytic model, also discussed in Chapter VI, provides an exaggerated picture of the effect of the intensive program by assuming that the T3 results would have continued without the

program, and that the attenuation from T3 to T4 is a program effect. We have thus chosen to emphasize the analyses using the basic regression (covariance) approach including only T1 and T4 data.

The school is the appropriate unit of analysis in this design (Koepke and Flay, 1989). However, our results are such that the effect size is considerably smaller than that used to conduct the initial power analysis. Using the school as the unit of analysis simply does not have sufficient power to detect small (but significant for practice) effect. In addition, using the school as the unit of analysis does not allow for control of individual student covariates, nor does it allow for linking individual students over time. Thus while we conducted the appropriate analyses using data aggregated from individual students to the level of the school, the emphasis of our analysis is on the individual level data. (This is common in reports of prevention research, even among methodologists who are strong proponents of the school as unit of analysis in their methodological writing.)

After testing the basic models, more complex multiple regression analyses were conducted to assess the role of various pre-existing and mediating variables in the development and change of health behavior. For this purpose, individual level data must be used. In particular, we have assessed the impact of program implementation, past and concurrent cohort health education experiences, and community mobilization for prevention as critical covariates affecting outcomes.

V. PROCESS EVALUATION FINDINGS

A. FINDINGS FROM THE SCHOOL RECRUITMENT PROCESS

Based on the process evaluation data, we have summarized the qualitative findings in the following narrative which discusses the recruitment of schools and communities into the study, and each of the four components of the **Healthy for Life** program. We also explore at length several of the qualitative rankings we have used as covariates to examine implementation issues. Process evaluation methodologies included classroom observations, teacher logs, teacher, parent and student interviews, and parent and student feedback surveys. This chapter concludes with four case studies which illustrate the total **HFL** implementation picture.

1. The Recruitment Process

The time required to recruit each site varied from three weeks to four months. It took nine months to recruit the 22 schools necessary to conduct the study. Two staff people spent one-half to three-quarters of their time on recruitment during those nine months.

Making an on-site presentation about the program greatly enhanced the chance of success of the recruitment effort. We contacted 258 schools directly by mail, and followed up with a telephone call if we did not receive a reply. Of those only 18% would agree to meet with us in person for a formal presentation. However, 47% of the districts we met with personally accepted the program.

An inherent tension exists between the practical needs of local school districts and the evaluation needs of a fieldtest. An administrator must attend to the pressing practical needs as his or her top priority. Some examples are:

- Scheduling difficulties;
- Changing from a junior high to a middle school format;
- Space issues;
- Critical local issues such as a new building referendum;
- Investment in a curriculum newly purchased or created;
- Opposition from powerful factions favoring other curricular areas i.e. computers or foreign languages; and
- Opposition from teachers.

Districts with more than one middle school presented additional problems in accepting random assignment. They tended to want all the middle school students in the district to receive the program under the same treatment condition. They were not open to having each school randomly assigned to treatment or control conditions. As an example, schools sharing health teachers or district-wide health or alcohol and drug abuse programming compelled administrators to deliver the same curriculum to all schools.

There is little commitment at the middle school level in most Wisconsin school districts to rigorous, scientific research or program evaluation. In fact, some school districts oppose being involved in research programs. Other districts are "research-weary." They have served as sites for many research programs and have a complex protocol for district approval in any research requiring inordinate time and staff investment. Many schools have been required to participate in student surveys and administrators were not comfortable accepting a program which required yet another round of student surveys on alcohol and other drug use.

The decision-making process in school districts is ultimately political in nature, including the decision to participate in **HFL**. For example, in some Wisconsin communities perceived as being conservative or highly religious, opposition to sexuality education, specifically contraceptive information, proved to be a barrier administrators would not attempt to hurdle.

In other districts there was competition from commercially packaged health education curricula backed by the financial resources of a local corporation or service club. These "competitors" are constantly being marketed in a sophisticated manner and are more convenient for schools to use due to their packaging, minimal time requirements and absence of rigorous evaluation needs.

A striking example from our experience is a curriculum being marketed by a partnership between a private corporation and a well-established, highly-respected service organization with a chapter in almost every Wisconsin community. The service club members, who were also neighbors, golf partners and business associates of school personnel, offered to cover the full cost of training teachers to deliver this program, often amounting to thousands of dollars. In exchange, the school district would purchase the printed materials not included in the teacher training -- such items as student workbooks and information for parents -- from the private corporation **and** recognize, publicly and often, the "contribution" made by the service club. Ostensibly, this appears to be a fine arrangement. The difficulty arises when one looks at this program closely and discovers that while claiming to be a prevention program for drug and alcohol use with a strong community involvement component, it really is primarily a self-esteem program partially funded by the service club.

In many school districts the teachers who would be involved in the implementation of the program participated in the decision regarding involvement in the **Healthy for Life** project. The involvement of the teachers did not ensure a positive hearing. At the present time, a health promotion program like **HFL** does not equal "health education" in teachers' minds since it challenges many traditional approaches to teaching young adolescents about health.

With a few exceptions, teachers still receive training which treats the subject of health like (a) other academic disciplines, focusing on a cognitive, knowledge-based approach, or (b) an impoverished, distant cousin of physical education. Additionally, very few teacher preparation programs in the country recognize young adolescents (ages 11-14) as a unique

group of students with very distinct educational needs. With our focus on behavior change, **Healthy for Life** challenges all three of these notions, concentrating on hands-on, activity-oriented lessons, cooperative learning, role-plays and skits, and lots of fun and interaction in the classroom. Our family component and using an incentive system rather than grades provide two additional examples of departures from traditional educational practices. For many teachers, even giving **HFL** a fair hearing was a real leap of faith.

We eliminated other districts because of unique situations. School districts in which students are "tracked" from an early age or which use "magnet or specialty schools" had to be dropped from the recruitment process due to their non-representative student population. Rearranging ability-grouped, homogeneous classes such as "Gifted and Talented" into heterogeneous **Healthy for Life** classes posed a scheduling nightmare for some principals. Larger, wealthier districts with Fine Arts or Math/Science Magnet Schools at the middle level would have yielded a skewed population for our study.

Social, economic or political factors in a school district's environment may preclude their participation in any research program and prevented their participation in **HFL**. A few examples are:

*District X -- had just experienced a major plant closing in the district and the attendant high unemployment and family stress problems. Changes in the behaviors HFL is measuring certainly are affected by these problems.

*District Y -- had a large Spanish speaking population and made the legitimate request that all curriculum and family materials be offered in Spanish as well as English. The HFL budget did not allow for this possibility.

*District Z -- some of the suburban Milwaukee districts were under a court-ordered desegregation plan and were consumed with the logistics of compliance. This situation also raised the issue of how a program based on the social influences model of an adolescent's surroundings is affected by bussing children in and out of their home environment.

2. Characteristics of Participating Districts

The school districts that did participate in the project tended to be smaller and more rural districts. All eight of the school districts that agreed to total randomization, in Phase One, were small schools. There were several probable reasons for smaller districts being more amenable to cooperating with us. In general, they had inadequate health education, or scattered health education in need of substantial revision. Being small, they had limited resources for curriculum development and teacher training. On the more practical side, they had less complex administrative bureaucracies with more direct decision-making. A small student body made the necessary scheduling changes easier to accomplish.

The larger, more urban school districts involved in **Healthy for Life** tended to be

more sophisticated and their administrators were more familiar with educational research. They understood some of the tenets of effective prevention programs for young adolescents and the need for program evaluation. Many also perceived of themselves as being active in the "state-of-the-art" programs which will benefit their students. Often their resources were diverted from health education into such areas as computer labs or foreign language offerings at the middle school level. A "free" program such as **HFL** carried extra appeal in these situations. A desire to integrate all health education topics into one high quality curriculum was also a factor. Other districts were motivated by a need to meet the new health education requirements of the Wisconsin Department of Public Instruction.

3. Recommendation for Large-Scale Fieldtests

Our experiences lead us to offer the following axiom we wish we had found in our textbooks, and to list seven specific recommendations for future school-based health research.

Remember that the absolute bottom line is: You cannot implement your program without the good graces of the school. You are dependent upon them. The greater the number of years you wish to collect data, the greater the dependency. Those of us who design rigorous scientific research projects hold a very different set of priorities than the people who manage school districts and teach children. Enormous demands and constraints bombard these people everyday, many of them with compelling immediacy. We are neither their clients nor do we rank at the top of their "To-Do" lists.

Recommendation 1: When pulling together the initial design team for the health promotion program, include staff with intimate knowledge of school environments. Research projects are often conceptualized and designed by clinicians, academicians and statisticians to answer scientific research questions without adequate attention to practical concerns. The involvement of educators, guidance counselors, organizational development experts and adolescents themselves from the beginning goes a long way toward creating the right mix of scientific rigor, appropriate educational pedagogy and practicality (Hansen 1991).

Recommendation 2: Scientific rigor seeks to hold constant as many variables as possible while schools, by their very nature, are fluid and dynamic. Since faithful implementation and an exceptionally high degree of fidelity to program design are goals, design the health promotion program to be compatible with middle school operations. This would suggest programs that easily fit into common class periods, schedules and quarter or semester lengths. This kind of information is readily available from state Departments of Public Instruction or Education. Ease of scheduling is very much appreciated by school district administrators. The Age Appropriate version of **Healthy for Life** provides a concrete example of what not to do: schools that run on nine-week quarters don't take kindly to four-week programs.

Recommendation 3: Allocate adequate staff time to recruit the number of schools

necessary for the intervention. (Two HFL staff people spent one-half to three-quarters of their time for over nine months to recruit 22 schools.) Allow a minimum of one year for the recruitment process. Insure adequate funding for the process. Assess travel expenses as precisely as possible remembering that the on-site presentation greatly enhances your chances of success.

Recommendation 4: Researchers have much to learn from product development experts. Communication and negotiation skills are critical to the success of the process. You are selling yourself and your staff as well as the ideas and program you have to offer them. Choose staff experienced in middle school education and communication. View the recruitment process as "selling" and the school districts as your "customers". Develop a sophisticated and polished "marketing plan" by: (a) including a staff person experienced in marketing or public relations; (b) using focus groups from your customer pool to guide your decisions about materials production, design, reading level and appearance; (c) build into your budget adequate resources for high-qualtiy audio-visual aids, brochures and handouts, keeping in mind that you probably have more than one audience of stakeholders to please in the recruitment process; (d) access the natural networks where your customers gather such as annual conferences of School Administrators and Middle Level Educators to introduce your program before you begin recruitment of individual school districts; (e) use newsletters and other media for the same purpose; (f) state Departments of Public Instruction or Education, Cooperative Service Education Agencies, Local Educational Agencies, teachers unions, etc. all sponsor staff development workshops at which presentations about your program can be made; and (g) create as many person-to-person contacts with your key stakeholders and public appearances as possible, knowing that once you begin the written recruitment process, those contacts will facilitate an invitation to visit the school district.

The positive experiences of Goodman et. al. with the use of supportive local intermediaries or brokers to act as informal recruiters for the research project, as well as official endorsements of the project by state Departments of Public Instruction or Education may be applicable to other studies (Goodman 1991). In our case, again because of controversial issues, we purposely chose not to pursue those routes. However, the extent to which we were able to influence administrators' peer networks had an impact on our success. Positive references and recommendations from colleagues, especially those administrators knew personally, increased our credibility.

Recommendation 5: Once you have secured an appointment to visit a school district, do your homework about the environment you are entering. Gather information up-front about the decision-making process and power structure in each school district. Know the agenda of the decision-making body. Find out as much as possible about the "politics" of each school district. If your program deals with sexuality education or any other controversial topic, assess the community's attitudes and be prepared to mobilize your allies. One method of accomplishing these tasks is to conduct phone interviews with a random or snowball sample of key informants. This should dovetail nicely with collection of some critical baseline information for your research project and can be written into the first year job description of a process evaluator.

Recommendation 6: Insist that teachers be included in the recruitment meetings or make a presentation at a faculty meeting or in-service. Be prepared to make several visits to a district if necessary. If teachers do not "buy in" during the recruitment phase, problems will surface during the implementation phase -- often very serious problems that jeopardize the continuation of the program at a particular site. Management styles differ across school districts, but make your best attempt to include teachers, especially those who will be personally involved in implementation, in the decision-making process.

Recommendation 7: Learn about the competing curricula you will encounter. Research the commercially packaged curricula being marketed in your area and find out if any evaluations of them exist. Be prepared to present a comparative analysis of those curricula and your program to your audience. If the curriculum is locally developed, ask the District Curriculum Coordinator to send you a copy. Learn about the investment of time and money that went into the process as well. Based on that information, you'll need to make a choice to either devise strategies to supplant the special sense of ownership that the district will have of its curriculum or move on to another district.

B. THE SCHOOL COMPONENT

1. Overall Curriculum Fidelity

A decision was made at the inception of **Healthy for Life** that we would hire our own teachers to deliver the program to ensure the highest fidelity to the program possible. Other researchers have found that the value of the evaluation was reduced because the ideal program was not implemented (Schaps, 1986), or that program effectiveness increased with a greater percentage of actual program delivery (MacKinnon et al., 1991).

The fidelity of the in-school program delivery was extremely high for **Healthy for Life**. Overall, teacher logs and classroom observations indicate 96% lesson implementation, with minimal variation across the 13 treatment sites. Even with the occasional unexpected schedule changes, the majority of the activities were delivered without compromising the integrity of the lesson or unit. A critical factor in maintaining such excellent fidelity was the **HFL** teachers and their personal and professional commitment to program philosophy and goals. Because the **HFL** teachers were so thoroughly trained in content, strategies and research, the overall goals and objectives of the lessons were implemented as written regardless of the level of support from the district teacher.

Data provided by HFL teachers in the form of logs (see Appendix A) were also examined. Teachers rated each of the 102 HFL activities for the extent to which the objectives were achieved (1=poor, 2= intermediate 3 = good), the interest level of students (1=no, 2=ok, 3=yes), and whether the stated strategies were implemented (1=no, 2=ok, 3=yes). It was also indicated whether there was independent verification that the activity was implemented as intended, based on classroom observation by evaluation staff or supervisors. From these data, a mean rating across all lessons taught was constructed for each of the three ratings for each teacher-school combination. Mean comparisons by

condition were carried out to test the hypothesis that there would no difference in implementation between the Age Appropriate and Intensive conditions.

Ratings were uniformly high across conditions, and did not differ significantly between Age Appropriate and Intensive conditions. The mean rating (on scales ranging from 1 to 3) for achievement of objectives was 2.83, for student interest was 2.75, and for implementation of strategy, 2.86.

A total of 1,734 activities were planned and reportable on the teacher logs. Of these, 292 (17 percent) were observed by an evaluation staff member or a project supervisor. Of the observed activities, the observer indicated that the activity was implemented as planned in all but 7 cases (2 percent). Overall, 70 (4 percent) of the required activities were logged as not having been done. The Age Appropriate and Intensive conditions did not differ on the number of activities planned but not implemented. The most frequently omitted activity was the anonymous questions discussion included as part of many lessons; it was often omitted due to having run out of classroom time.

2. A Profile of the District Teachers Who Co-Taught HFL

Sixty local teachers were involved in teaching **Healthy for Life**; we were successful in collecting data from 57 of them. Forty-four of these teachers were involved in teaching the Age Appropriate version and 13 taught the Intensive version. There were very few differences between teachers involved in the Age Appropriate and Intensive versions.

The teachers from the local school districts came from a wide variety of disciplines. Almost 30% of the respondents taught science and nearly as many, 27%, were generalists, e.g. taught 6th grade and covered most of the subjects. From those categories the proportion dropped rapidly to 12.5% who were health and physical education teachers. Another 10% taught language arts. Others taught math, computers, French, and social studies; one was a nurse and one was a guidance counselor.

Observations from **HFL** staff indicated that no discipline seemed to have an advantage in delivering **HFL** as we intended it to be taught. However, in general, we found that health and physical education teachers were more likely to resist our methods than teachers from other subject areas. This is probably due to their training in traditional health education and their allegiance to their own methods of teaching the same topics.

Some of the local teachers were involved in the decision by the school district or school to participate in the **HFL** study while others were assigned to teach **HFL** by their administrators. As one would expect, those who had no input into the decision were more likely to resent the **HFL** intrusion and resist, somewhat, the methods and messages we were trying to accomplish.

Approximately 15% of the district teachers demonstrated open resistance to the program or conflict with the **HFL** teacher. Teacher resistance primarily took the form of

disengaging from co-teaching the curriculum, especially the sexuality lessons. Occasionally the district teacher blatantly contradicted or challenged the project teacher during lesson presentations. If a district teacher was resistant, or personality or philosophical conflicts erupted, the classroom climate became more restrictive and student participation in discussions decreased. The **HFL** teacher was then faced with the dual task of nullifying teacher resistance and engaging students in the lesson. These situations greatly increased the chance of **HFL** teacher "burn-out," particularly in the Intensive schools where implementation was for 12 consecutive weeks.

District teacher support and involvement positively affected classroom climate, the performance and stress level of the **HFL** teacher, and student participation in the more sensitive lessons. When the two teachers complemented each other in terms of style, personality, enthusiasm for teaching young adolescents, and philosophy of middle level education, their classrooms were open, dynamic learning environments. Fortunately, this was the case in the majority of our field sites.

Very few district teachers had previous experience with co-teaching as employed in the same intense manner as **HFL**. The majority of the district teachers embraced the concept of co-teaching, even if initially hesitant. Co-teaching wasn't always divided equally for each activity, partially due to the lack of familiarity with the curriculum. Another major challenge for many district teachers was the sharing of classroom management with a second teacher, particularly one from outside the district who was the so-called "identified health expert." However, by the end of the implementations, most district teachers offered praise and appreciation for the **HFL** teachers and indicated their own personal enjoyment with the co-teaching arrangement -- sometimes to their own surprise.

3. Emergent Themes from District Teachers

The following comments reflect the range of impressions about the in-school components from the local district teachers who co-taught **HFL**. Members of the evaluation team conducted fifty-seven exit interviews soon after district teachers completed their experience with **Healthy for Life**. Each interview lasted approximately 30 minutes; all were conducted at the school site. The interview schedule is included in Appendix B.

a. An Overall Positive Reception of HFL

The teachers generally liked the curriculum. They found it engaging, dynamic, fun, easy to use and an opportunity to improve their own classroom styles. Many of the district teachers expressed a desire to adapt certain activities and strategies to their regular classrooms and subjects after **Healthy for Life** was over.

The teachers also overwhelmingly enjoyed teaching **HFL** or felt they gained from their participation. This was especially true of their experiences in co-teaching with our staff teachers. The most common comment in the interview was that they enjoyed working with

the **HFL** staff teachers. Two teachers volunteered the comment that since **HFL** was so unlike what they usually taught, initially they were apprehensive about their participation. In fact, they found themselves comfortable with the program and enjoyed their involvement. The three day training and explicit curriculum made it clear what was expected of them. The fact that a member of the **HFL** staff was present to learn from was crucial to their comfort level and ability to maintain high fidelity of implementation.

Some teachers mentioned disliking the constraints put on them in the name of scientific consistency and "research." They experienced this as unnecessary rigidity and a restriction of their creativity, ability to modify lessons, timetables, and approaches to teaching.

Many of the teachers mentioned that the students enjoyed **HFL**. This was especially true of the many hands-on activities and games. As one teacher reported, "some of my more difficult kids became super engaged" with **Healthy for Life**. This included some of the high-risk students and a great many of the special education students. Other teachers volunteered that students in their schools were talking about **HFL** outside of class. We feel this is an indication of the program's ability to penetrate the social world of the adolescents.

b. <u>What Is Appropriate Pedagogy for Middle Level Education?</u>

Many teachers struggled with acceptance of the basic philosophical foundation of **Healthy for Life** and the exclusive use of the eight teaching strategies. At the heart of the issue was the curriculum's appropriateness for the developmental needs of young adolescents and its conflict with the traditional definition of "correct" pedagogy. Lesson design, method of instruction and teaching strategies that fell outside traditional approaches to education were sometimes viewed as chaotic, poor management or of no learning value. At other times, teachers professed to like these ideas in theory, but experienced difficulty executing them because of their prior training.

The curriculum requires teachers to shift to a belief that health behavior change in adolescents lies in the acquisition of skills to negotiate peer cultures, not in the recanting of health related information or knowledge. This change in orientation caused some teachers to question the "true educational value" of the program's games and hands-on activities. Others voiced the opinion that students were being distracted by the competitive aspects of the games, rather than focusing on a demonstration of knowledge gained. Some even complained that the program was too much fun and that it "overstimulated" the students. In a few cases, teachers articulated the different orientations as a different definition of appropriate discipline.

The lack of experience on the part of some district teachers with small group work and cooperative learning lessons was apparent in their inability to accept a wide variety of instructional methods. For these teachers, the increase in "out of turn" talking and the frequent movement about the classroom was discordant and intolerable. The behavior of these teachers reflected a need for tight classroom control and quiet, even though students

were almost always "on task" during these activities.

For the most part, teachers felt the curriculum was appropriate for middle schoolers, especially topically. The high risk health behaviors and life skills acquisition were recognized by teachers as extremely relevant. One teacher involved in the 6th grade segment of the Age Appropriate version suggested that HFL should begin in 5th grade; we agree with that assessment. A common impression was the problem created by an overlap with recent or current health education classes. In some cases, student fatigue was apparent, even though the activities and methodologies were extremely different.

Several specific concerns emerged during the interviews about the developmental appropriateness of the HFL curriculum. For example, several teachers mentioned that the public commitment strategy included statements in the curriculum that were too immature for the students. They seemed a little "goofy." Some teachers felt that the scenarios depicted in some role plays were either too old or too young for the students, depending upon who was talking. Our rapid-fire approach caused many teachers consternation about the lack of "processing" time to thoroughly learn "concepts," once again highlighting the difference in educational orientation. Several teachers felt that we expected too much from the students during the health advocacy event at the end of the curriculum. The four to six teachers who disagreed with the way we approached human sexuality believed that the sexuality activities were too mature for the students.

These four to six teachers had philosophical differences with the HFL program regarding sexuality education in general and contraception specifically. They felt that discussing contraception gave students a mixed message: that even though we stated that sexual intercourse is not appropriate for middle school students, we then instruct them about effective use of contraception. A much larger group of teachers was uncomfortable teaching mixed-gender classes about sexuality. For some of them, it was simply because they had no prior experience with it. Human sexuality was the topic most discussed in the teacher trainings and the topic that most teachers discussed with us. Quite a few teachers did praise several of the HFL activities that asked students to analyze and clarify their beliefs and values about relationships and appropriate sexual activity for adolescents.

A related issue dealt with the level of information the students had about the HFL topics before the program was implemented. Several teachers felt HFL did not give the students enough facts. This was most commonly seen in a request to offer basic human growth and development; teachers requested specific anatomy and physiology of human reproduction. We discovered, in fact, that the material covered in previous classes was highly variable. In general, we designed HFL assuming that the students had a modest level of fact-based understanding of the topics and that facts were irrelevant to HFL's goals. We wanted to focus on behaviors. In actuality, we provided more facts about sexuality and contraception than in the other topics just because we knew that in some schools, they had not been covered at all. We used anonymous questions taken from the students as the most effective way to deal with their desires to acquire or better understand factual information.

A natural outgrowth of the pedagogial debate were some common complaints related

to how the HFL implementation affected the district teachers personally. These tended to focus on the delivery of lessons and the strategies. By far the most common remark was that the HFL program had too much to cover in the allotted time, especially in Segment I. (Since we had very little flexibility in time allotments on-site due to the travel schedule of our teachers, this was even worse in the Age Appropriate version.) Several of the teachers felt overwhelmed, or that the program was too intense, or that they were pressured to cover too much material. Of course, the program was designed intentionally to be delivered by two teachers and to move very rapidly.

One area in which we all agree was the unintentional short-changing of the anonymous question periods. Using anonymous questions was a highly effective technique. Because of the time demands of other activities, the allocation in the curriculum for answering these questions was compromised. More often than not, both teachers and students experienced frustration that more questions could not be addressed or that more anonymous question periods could not be included in the program. Some teachers dealt with this situation by starting each class with 5-7 minutes of anonymous questions. This is definitely an area for future program revision.

c. Grades Versus an Incentive System.

Several district teachers had difficulty with the use of an incentive system as a method of engaging students in lessons and providing positive reinforcement for homework completion. These teachers viewed earning a grade as a reflection of learning and believed that grades held students "accountable." A few teachers stated outright that we should use grades in HFL. Clearly, this group of teachers did not view grades as a type of incentive system. One person disagreed with our use of competitive games in the curriculum. Interestingly, several students and parents also had difficulty making the transition from grades to an incentive system. For them, grades measured and reflected intellectual status and a student's worth, whereas the incentives were deemed "silly" or "a waste of money."

d. Peer Leaders.

Using Peer Leaders to deliver part of the curriculum was another major departure from the way middle school insturction is usually organized. This strategy necessitated finding time to train the Peer Leaders either outside of the regular school day or taking the students out of classes. Taking the Peer Leaders out of other classes was resented by some of the teachers in the school who were not involved with HFL.

Faithful implementation of this strategy also required teachers to give up a great deal of control. In the beginning days of the program, many teachers believed that middle schoolers were not capable of performing the tasks demanded of Peer Leaders. About one quarter of the teachers who mentioned Peer Leaders believed that they were not always well prepared. Some teachers felt compelled to take over the lesson if they perceived the Peer Leaders to be "floundering." Others were not comfortable with these students "hamming it

up" in front of their classmates, even though this was encouraged when appropriate in the trainings.

It was a consistent observation that more training time was necessary, especially in some of the schools where we encountered minimal administrative support for this strategy. More in-depth training and practice time on leading class discussions was most frequently mentioned. Of all the Peer Leader tasks, this one posed the greatest challenge for the developmental stage of young adolescence. Many teachers expressed either a lack of familiarity or comfort with the general concept of student leadership when taken to the lengths we employed in **Healthy for Life.**

Most of the teachers believed that the students elected good Peer Leaders who were the real social leaders. However, a smaller group disliked this strategy because they saw it as a popularity contest and felt it did not work out well. Some members of this second group mentioned that the teachers should have more control over who was elected Peer Leader. Several teachers mentioned that serving as a Peer Leader had "done wonders" for students judged to be high-risk or to have low self-esteem. Similarly, several special education students were perceived to have benefitted greatly from being Peer Leaders. In a few classrooms, we ran into the problem of the other students being jealous of the Peer Leaders.

e. Parent/Adult Interviews.

Overall, teachers reported positive feedback on the use of the Parent/Adult Interviews. The most common theme centered on the opportunity the interviews created for parent-child communication that would not otherwise have been pursued. Several teachers also reported parental appreciation of being included in their child's education about these high risk behaviors. Those teachers who served as the significant adult for a student believed that the experience and the relationship were positive and rewarding.

Those negative views received by teachers focused on the issue of interview topics being too sensitive, personal or even threatening. These parents especially resented their son or daughter discussing the responses to the interviews in class. In Segment III of the Intensive version, a few parents reported to the teachers that they were getting tired of the interviews. However, two of the teachers explicitly stated that they felt the parent interviews were the greatest strength of the program.

f. The Use of Role Plays as Part of the Social Inoculation Strategy.

Role plays and scenarios were used extensively as one component of social inoculation. Teachers seemed to have a love-hate relationship with role plays. Since using role plays has received much attention in educational circles for some time, teachers expressed an acceptance of them in theory. Some teachers believed that they were extremely valuable. These teachers, in most cases, had used them before in other contexts.

A larger proportion of teachers were uncomfortable with the actual execution of role plays. There appeared to be a correlation in the eyes of our staff evaluators between the comfort level of the teacher and how well the role plays worked in the classroom.

Teachers reported that all HFL classrooms used the role plays as the curriculum prescribed and that both teachers and students got better and better at using them. Often the quiet or shy students would not participate in the role plays. The role plays associated with human sexuality were the most difficult for the students, and some teachers, to handle. There was a great variability among schools regarding prior experiences with role plays and student willingness to participate. This appeared to be associated with the school climate and kinds of teaching methods the students were used to in their education careers.

g. Health Advocacy Events.

The inclusion of health advocacy events was the least traditional teaching strategy in HFL. The most common comment was that it was too disorganized and the teachers should be in charge of it. At the same time, many teachers expressed feeling over-worked and a blatant fear of working on this type of project. Just as with the Peer Leader strategy, some teachers doubted young adolescents' ability to organize and implement an event. Disagreement about the appropriate level of expectations for middle schoolers emerged between many teachers and HFL program planners.

A smaller number of teachers understood the point of the advocacy event and strategy, felt that it was truly "kid-owned" and a tremendous learning experience for the students. For almost all of the teachers, a student organized event to promote health within their school or community was outside their realm of experience. The HFL staff teacher and community organizer (when possible) took responsibility for guiding the students in the event. One teacher complained that the kids were "just having fun." In fact, there was a range of impressions among the schools, teachers and students as to how pertinent the health advocacy event was to health promotion or to middle level education.

h. Other Teaching Strategies.

Much less was said during the interviews about teaching strategies which were closer to the mainstream. Most often a teacher only mentioned them and elaborated very little about them. One of our findings was that advertising and media analysis was generally well covered in many of these schools and our approach to the media needed to be more innovative and sophisticated.

4. Student Impressions

At the end of each year's intervention, the evaluation staff interviewed students involved in the program. We asked the local teachers to nominate the students who were

most likely to share their opinions, both pro and con, with the interviewers. We interviewed 128 students from schools receiving the Intensive version and 191 students in Age Appropriate schools (319 total interviews). The interview protocol is in Appendix B.

In response to questions regarding which of the five areas in **HFL** they learned the most about, the greatest number of students felt they learned the most about human sexuality. The topic they ranked second was nutrition. Interestingly, nutrition was also mentioned most often as the topic in which they learned the least.

The majority of students cited learning new things or having interesting lessons and activities as the reason they learned the most in a particular topic area. Likewise, lessons perceived as boring or repetitive of subject matter taught elsewhere in their school experience resulted in the least amount being learned.

When asked how **HFL** was different from other classes, the overwhelming student response (64%) was that it was fun and active. The next most common response category had to do with the climate in the classroom. The students felt that the **HFL** classes had more open discussion, the teachers listened to the students more often and seldom lectured at the students. They also mentioned the ease of relating to the **HFL** staff teachers. The students said the **HFL** staff teachers answered questions directly and they felt safe asking them a wide range of questions. Other students mentioned additional ways in which **HFL** differed from other classes: the use of Peer Leaders, the topics being covered together in one class, more interaction with parents, the use of role plays and unique homework assignments with prizes.

When asked how the students thought that **HFL** would make a difference in their lives, the most common response was by learning refusal skills. "Helping me make better [illegible] Surprisingly, while the students learning healthier foods" was [illegible] only a few (8) of them mentioned sexuality as an area **HFL** would influence.

Approximately 1600 students completed a brief feedback questionnaire on their opinion and satisfaction with **Healthy for Life** by indicating their agreement with statements about the program. Due to the size of the sample (55% of the first wave of outcome data) and staff observations indicating the absence of a skewed respondent population, we believe this sample to be fairly representative.

Overall satisfaction with the program was high, with over 70% of the students agreeing they were involved in the lessons; **HFL** included interesting activities; they learned a lot from **HFL**; and **HFL** influenced their behavior. This was consistent across conditions (Table V-1). Approximately 15% of the students felt **HFL** was a waste of time, with male students showing less satisfaction than female students. Students generally found the **HFL** topics helpful - nutrition, tobacco, alcohol, sexuality, marijuana, learning to say no. Approximately 10% of the students indicated the **HFL** topics were "not helpful at all."

TABLE V-1:

STUDENT SATISFACTION WITH THE "HEALTHY FOR LIFE" PROGRAM

STATEMENTS:	OVER-ALL	INTEN.	AA*	GIRLS	BOYS	Peer Leaders
There were interesting activities.	71%	70%	71%	78%	65%	79%
I was involved in **HFL** lessons.	73%	75%	71%	79%	68%	88%
I learned a lot from **HFL**.	81%	83%	81%	86%	76%	86%
I have changed my health behavior due to **HFL**.	63%	66%	61%	69%	56%	71%
I will use this material in my life.	86%	86%	86%	90%	81%	90%
HFL was a waste of time.	15%	15%	15%	10%	19%	9%

(Note: The Age Appropriate version was delivered in 3 four-week segments. Therefore, there were three waves of questionnaire data to analyze. The percentages reported here for the Age Appropriate condition are an average of the three waves.)

There was no significant variation in satisfaction between the two conditions, with students receiving the Intensive version indicating a slightly higher satisfaction percentage on most statements than the Age Appropriate. Intensive students were more likely to report greater involvement in the lessons, learned more from **HFL**, and indicated a behavior change due to **HFL**. However, there was agreement on the future use of the material.

From a classroom environment perspective, students in the Intensive condition also reported higher comfort levels with the **HFL** teacher (69%) compared to the Age Appropriate students (62%). This is not surprising given the amount of time the **HFL** teachers spent assimilating into the Intensive classrooms (12 weeks) compared to the teachers in the Age Appropriate condition (4 weeks).

It is interesting to note the general decline in satisfaction among students in the Age Appropriate condition from 6th grade to 8th. Table V-2 shows a steady decline on all of the above statements, with a major increase in student agreement with the statement "**HFL** was a waste of time."

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TABLE V-2:

DECLINING ENTHUSIASM AMONG STUDENTS IN THE AGE APPROPRIATE VERSION

STATEMENTS	6th	8th
There were interesting activities.	80%	56%
I was involved in **HFL** lessons.	79%	64%
I learned a lot from **HFL**.	93%	66%
I have changed my health behavior due to **HFL**.	76%	45%
I will use this material in my life.	90%	78%
HFL was a waste of time.	8%	32%

There are several possible reasons for the decline in student satisfaction with the **HFL** program in the Age Appropriate schools. First, there is a difference in curricula structure and activities between the first and third segment. The third 4-week segment involved fewer "hands-on" activities compared to segment I. In interviews following **HFL** implementations, students consistently indicated the activities as being a critical factor in their enjoyment of **HFL** and what set **HFL** apart from other health classes.

Secondly, the last segment included more discussion on alcohol and sexuality, which, given the developmental characteristics of young adolescents, are more difficult for middle school students to discuss in classroom settings. The third segment required students to take more personal risks in revealing their attitudes - with eighth graders there is greater concern with "losing face" among their peers. Students at Intensive sites received this segment in seventh grade, where these issues are a factor but not to the same extent as in eighth grade. Parental involvement in the third segment included assignments on developing rules pertaining to alcohol use, dating, and appropriate sexual activity, not subjects most eighth grade students feel comfortable discussing with their parents.

Girls liked **HFL** better than boys: an 85% approval rating compared to a 78% approval rating. Females were more likely than boys to discuss **HFL** with parents and complete assignments, more likely to feel comfortable with the **HFL** teacher, more involved in **HFL** activities, more likely to express behavior change, and more likely to write a positive comment about **HFL**. 59% of the Peer Leaders were females and only 41% were males. There was even some difference on whether or not the student would use skills learned in **Healthy for Life**: 90% for girls and 81% for boys. Two relevant facts may interact with this data: (1) all the **HFL** staff teachers were females; and (2) on average, females experience the onset of puberty at an earlier age than males.

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5. Community Controversy Over the Sexuality Portions of HFL

One issue that arose during the school recruitment process and stayed with us for two years was the propriety of sexuality education in 7th grade. In two schools receiving the Intensive version, the **HFL** staff spent numerous hours dealing with administrators, school boards and parents concerned with our inclusion of sexuality education in general, and contraception specifically, in **HFL**. In these sites, **HFL** staff were personally attacked for the program's philosophical and public health approach.

In at least three other schools and communities, there was some concern but it did not take as much time or become as nasty. These controversies all occurred after the local decision-makers had agreed to implement **HFL**, having been totally informed about our approach to human sexuality and contraception.

Parents in all of our participaing schools were able to withhold their children from the entire program, or any lesson or unit, for any reason. All they needed to do was contact the school administration. Students were kept out of **HFL** by parents at a surprisingly low rate: 3.5% of the students in age appropriate schools and .5% in intensive schools.

We had more problems with parents regarding the human sexuality portion of **Healthy for Life** in the Intensive sites. Our two most problematic schools were both in the Intensive condition of the study. We experienced virtually no controversy over the sexuality lessons among the parents of the students in the Age Appropriate version of the program. This was, no doubt, due to two factors: (1) the students did not receive the lesson on contraception until they were in 8th grade in the Age Appropriate schools, as opposed to 7th in the Intensive schools; and (2) the parents in the Age Appropriate schools had two years to experience and participate in **HFL** and were more trusting of the program. We can also hypothesize that the growing awareness of the AIDS epidemic has made discussions of contraception more acceptable over the past two years.

C. THE PEER COMPONENT

The use of Peer Leaders to deliver a portion of substance abuse prevention programs is not uncommon and has proven its effectiveness (Dryfoos, 1990; Perry, 1988; Tobler, 1986). While the election, training and activities of the Peer Leaders all occurred in school, we have always treated this approach as a distinct component of the **Healthy for Life** program. The research on Peer Leaders indicates that they will affect other adolescents in social situations outside of the school setting.

1. Review of the Objectives of the Peer Component

The **HFL** Peer Component had three primary objectives:

a) To identify the social leaders in each school's treatment cohort of students and train

them to deliver portions of the in-school curriculum by:

1) performing demonstrations;
2) leading brainstorming sessions and small group activities;
3) playing key roles in scenarios and the initial role plays used to teach social competencies and peer refusal skills; and
4) leading class discussions and asking questions;

b) To gain a greater understanding of how adolescents actually function as Peer Leaders in prevention programs; and

c) To gain insight into how Peer Leaders are received as purveyors of prevention messages by their fellow students and teachers.

2. Implementation of the Peer Component

Students elected three Peer Leaders per classroom on the first day of each segment (Intensive) or grade level (Age-Appropriate) of **HFL**. These elections followed a discussion of leadership qualities and a description of the responsibilities Peer Leaders would carry during the program. Teachers did not vote, and we requested that they not attempt to influence the students' choices. Students were allowed to vote for themselves; no limitations were placed on the number of times they could serve as Peer Leaders. Over the course of the program:

* 26% of all students served as Peer Leaders during at least one segment,
* 17.7% served during only one segment,
* 6.4% served during two segments, and
* 2% served during all three segments.

No significant difference in these rates emerged between the Intensive and Age-Appropriate versions. Over the four years of **HFL** program implementation, only one Peer Leader was removed due to negative behaviors. Occasionally, students would decline to serve as Peer Leaders due to other demands on their time such as Gifted and Talented programs or a school play.

The design of **HFL** provides an intentional prominence to the Peer Leaders, more so than any other prevention program aimed at young adolescents. Of the 101 activities (58 lesson days) in the curriculum, Peer Leaders performed at least one task in 34% of them. The following Table V-3 is instructive for seeing the progression of the Peer Leaders' participation and types of tasks we asked them to perform:

TABLE V-3:

PEER LEADER PARTICIPATION IN HFL

Segment	At least one task	Significant tasks	Leading a discussion	Majority of act.
1	16	9	1	6
2	11	3	4	7
3	7	1	5	5

As HFL progressed, we expected the Peer Leaders to conduct the majority of the activity a greater percentage of the time. We also expected them to lead a greater number of class discussions which was, by far, the most difficult task for them to accomplish. We had fewer repeating Peer Leaders than expected across all three segments. As program planners, we anticipated that Peer Leaders would often be reelected, would receive extensive, sequential training and would thereby refine their ability to perform the difficult task of leading class discussions. Our expectations stemmed from our abstract conception of how the elections of Peer Leaders would work. In reality, the students in some classes tended to "give other people a chance" and elect a predominately new set of Peer Leaders each segment. Therefore, the training for some Peer Leaders never reached the depth we planned because the key first training was missed by many of the Peer Leaders.

As stated earlier, the training sessions were critical to the functioning and relative success of the Peer Component. Our project teachers were responsible for conducting all trainings, although the local district teachers were welcome to attend. Principals were informed of the need for these trainings during the recruitment phase. We asked that they, not the teachers, schedule the training times according to the following format:

Week 1:	2 periods
Week 2:	1 period
Week 3:	1 period
Week 4:	1 period
Week 5:	2 periods
Week 6:	2 periods
Week 7:	1 period
Week 8:	1 period
Week 9:	2 periods
Week 10:	1 period
Week 11:	1 period
Week 12:	1 period

The principals' compliance with this format ranged from 60-100% as indicated by the HFL teachers' logs and school narratives. However, the time of day during which trainings

were scheduled, the actual length of the trainings, and hostility from other teachers had a definite impact on the effectiveness of the training sessions. For example, trainings held during lunch were generally not productive and trainings scheduled during 20 minute periods could not yield the same results as those held during a regular 43-50 minute class period. Several teachers communicated hostility, either explicitly or implicitly, to Peer Leaders about missing their classes for training. This seriously harmed the effectiveness of the peer component. In a few cases, teachers "punished" Peer Leaders by assigning extra work or adhering to unreasonably strict deadlines. The numbers and success of the training sessions are factored into the ranking of Peer Leader performance addressed below.

3. Peer Leaders More Positive than Other Students

The Peer Leaders were consistently more positive about **Healthy for Life** than were the other students.

According to the student feedback questionnaires, in the Age Appropriate version students found the Peer Leaders slightly more helpful then students in the Intensive version (82.9% Age Appropriate vs. 78.5% Intensive). There was no decline in this difference from 6th to 8th grades. 17% of the students who answered the survey said they had been Peer Leaders.

Our interviews with students also had the same results. Virtually all the students who served as Peer Leaders were positive about the use of Peer Leaders in **HFL**. They also felt that their classmates liked having Peer Leaders. They mentioned that being a Peer Leader was fun and they liked helping other kids. Some wanted to do it in other classes as well. The Peer Leaders believed that students listened and related better to the messages coming from the Peer Leaders. The students who were not Peer Leaders were a bit more negative about the use of Peer Leaders, however, a large majority were still in favor of having Peer Leaders. The negative side of Peer Leaders was that a few students saw it as a popularity contest and others were jealous of the Peer Leaders. There was a problem in some classrooms, or schools, where the Peer Leaders were not adequately prepared for each class. Even some of the Peer Leaders realized that more training and preparation time was necessary in some instances.

These findings indicate that the strategy of involving the social leaders in the delivery of the program was working. This assumes that the true social leaders of the school were elected Peer Leaders and, as mentioned elsewhere, there is some question about that in at least some of the schools.

4. Rankings of Peer Leaders' Performances by School

We ranked Peer Leader performance for each segment per treatment school site. These were based on classroom observations of peer-led activities by non-teaching **HFL** staff. Using a Likert scale of 1 - 3, a maximum of 42 points was possible for each segment.

We scored each segment and then averaged for a single score using the following guidelines:

1) Preparation for the activity:
   a) Number of training sessions they had;
   b) Peer Leaders reviewed tasks before class;

2) Peer Leaders as role-models:
   a) Their commitment to HFL topics;
   b) Positive behavior during the activity and other observed lessons;
   c) Use of self-disclosure and sharing the information from their parent/adult interviews;

3) Performance of tasks:
   a) Transmitting the HFL messages;
   b) Leading brainstorming sessions;
   c) Willingness to participate in role plays;
   d) Engaging students in class discussions;
   e) Effective delivery style - tone of voice, affect;

4) Inter-group cohesion (each class had a trio):
   a) Ability to get along with one another;
   b) Gave balanced presentations;
   c) Presence of dominance issues;

5) Comfort level with being a Peer Leader:
   a) Self-confidence in front of class;
   b) Pride in being a leader.

Tables V-4 and V-5 below illustrate the rank and score of Peer Leader performance in each treatment school by condition:

TABLE V-4:

RANK AND SCORE OF PEER LEADERS BY AGE APPROPRIATE SCHOOL

Rank	Age Appropriate School	Score
#1	Gideon Junior High	40
#2	Hillary Middle School	38
#3	Goldstream Middle School - North Angle	36.3
#4	Paradise Middle School	36
#5	Artery Middle School	35.3
#6	Hepville Middle School	33.3
#7	Crandle Middle School - Overton	26.3

TABLE V-5:

RANK AND SCORE OF PEER LEADERS BY INTENSIVE SCHOOL

Rank	Intensive School	Score
#1	Burton Middle	39.7
#2	Peterson Middle School - Overton	38.7
#3	Molar Middle School	32.3
#4	Milan Middle School	31.7
#5	Zurich Middle School	24
#6	Salem Middle School	19

The rankings were used in the overall ranking of program implementation which was treated as a covariate in our final analysis.

5. Themes About Peer Leaders from Teachers

The **HFL** research staff interviewed both the project and the local district teachers approximately 1-4 weeks following program implementation in a particular school. We

used an instrument consisting of both closed and open-ended questions; interviews lasted 30-60 minutes. Fifty-seven teachers from the local school districts were interviewed.

In general, teacher interviews echoed the perceptions of Peer Leaders reported in the student interviews. Except in a few cases, teachers perceived the class elections of Peer Leaders as appropriate. Their trepidation emerged not with popular or gifted students, but when students they described as already engaging in high risk behaviors were elected. This situation caused great discomfort which diminished over time. Ultimately, the HFL Peer Component was perceived as "helping" these students improve their self-esteem and negative behaviors.

Teachers perceived Peer Leaders as effective role models, especially during small group activities and lessons dealing with peer refusal skills. Teachers agreed with students in reporting that class composition in terms of the social groups present in each classroom heavily influenced the Peer Leaders equalling the social leaders. Teachers pinpointed male-female balance as an additional factor affecting the election of the true social leaders.

Teachers felt Peer Leaders did a good job with demonstrations, leading brainstorming sessions, and acting in role-plays. They were critical of their ability to lead class discussions and ask questions, and recommended additional training sessions devoted to these skills. Teachers reported that Peer Leaders needed to practice more outside of the school environment before they performed; they perceived them to be "winging it" some of the time, especially repeat Peer Leaders. Just as students did, teachers viewed the Peer Leaders as most effective when they paraphrased, used their own language, and did not rely on the written script. Interestingly, even as they made these observations, many of them perceived the time and personnel required for Peer Leader training sessions to be problematic and the students' absence from other classes disruptive. While most of the teachers rated the Peer Leader Component as "essential," they characterized it as "unrealistic" given current school structures.

6. Themes About Peer Leaders from Students

Following the implementation of HFL in the schools, our research staff conducted two types of student interviews. In the first type, staff returned to a school to administer a 10-15 minute close-ended interview instrument to 12-25 students. We requested ahead of time that teachers excuse 2-3 students from classes throughout the day to meet with our staff, and that both Peer Leaders and non-Peer Leaders be represented. We were dependent upon the cooperation of the local teachers for this data collection; we were successful in all 13 of our treatment sites.

The second type of interviewing consisted of open-ended interviews (see Appendix B) with a purposeful sample of students from high, medium and low risk populations. Teachers, guidance counselors and principals nominated students for each group. A second HFL staff person conducted these interviews primarily in home settings; they

lasted 30-40 minutes.

Several consistent themes emerge from this data regarding students' perceptions and acceptance of Peer Leaders. All four of the following themes are powerful observations which reccurred in the majority of schools.

a. The Peer Leaders Provided Credibility to the HFL Topics and Messages.

Students accepted the five HFL topics and the refusal skills as more believable and relevant to their lives when presented by the Peer Leaders. The presence of the Peer Leaders increased student attentiveness and participation in classroom activities and discussion. Students described their presentations as being in their own language most of the time, and as making discussions more open and easier to follow. The most influential peer-led activities were perceived to be in "genuine voice." When Peer Leaders read from the script or were seen as parroting the teachers' agenda, the power of their messages was diminished. Students described as most impressive those activities and messages in which Peer Leaders communicated naturally and spontaneously.

b. Healthy for Life Students Perceived Peer Leaders as Role-models and Purveyors of Important Information.

Students reported that Peer Leaders were accessible providers of information and interpretation of health behaviors both inside and outside of the classroom. Peer Leaders performed capably when called upon to outline the daily class activities or discuss a homework assignment. During small group activities, students expected Peer Leaders to provide direction and facilitate the completion of the task at hand.

c. Students' Perceptions of Peer Leaders as the True Social Leaders of the Class Varied Tremendously from Classroom to Classroom.

When students felt that the Peer Leader elections were actually "popularity contests," they did not describe the Peer Leaders as the true social leaders nor were they seen as representative of the entire classroom population. In these situations, students viewed Peer Leaders as calling only on their friends for activities or discussions, thereby excluding most other students from any participation. These particular students were the most critical of Peer Leader performance, using words like "unprepared," "disorganized," and "giving confusing directions." Although they stated that they agreed in theory with the strategy of using Peer Leaders in HFL, these students would have preferred teacher selection and a strict limit placed on the re-election of these "populars" from one segment to another.

Students who validated Peer Leaders as effective social leaders described them as not having a clear social label; they were neither the goody-goodies nor the dirtballs, the brains nor the druggies. The most powerful Peer Leaders possessed the ability to move

between social groups with ease, without alienating students from any one particular group and thereby diminishing the power of the health messages to be "heard." The social identities of these successful Peer Leaders did not threaten the rest of the students, most especially those at risk for early onset of our targeted behaviors. Sometimes referred to as "brokers," these Peer Leaders were able to infiltrate many peer networks, while retaining the respect of their classmates as strong, confident individuals.

The fact that 26% of our treatment population served as Peer Leaders during the course of HFL may be relevant to the question of whether they were indeed the social leaders. Given what current research illustrates about the many distinct peer cultures co-existing in a school at one time, it is doubtful that a quarter of the grade population functions as true leaders. The phenomenon of students willingly expressing the desire to "give others a chance," during re-elections came as a surprise to us as program planners, and may have undermined our original plan to identify and retain the authentic social leaders for the duration of the program.

d. Students' Perceptions of Peer Leaders' Effectiveness Varied by HFL Treatment Condition.

In the Age-Appropriate schools, class composition changed each year, often dramatically in schools that had eliminated tracking systems. This reality fostered the election of a new set of Peer Leaders by a new configuration of students. Indeed, students in this condition remember a greater number of "new" Peer Leaders with each year's implementation and a fewer number of repeaters. This finding coincides with the developmental phases of young adolescents and may have had a tempering effect on their judgements of Peer Leader performance. Age-Appropriate students interviewed reported fewer "popularity contests" and less overall resentment of their classmates who served as Peer Leaders.

In the Intensive version, with the segments delivered back-to-back, students reported a better recall of who served as Peer Leaders, a greater number of repeaters, and less tolerance for inadequate Peer Leader performance. Significant resentment emerged during these interviews and more frequent characterization of Peer Leaders as coming from just one peer group as opposed to being representative of the entire classroom population. Since our numerical data (collected by teachers) indicates only a small fraction of actual repeat Peer Leaders, other factors such as student fatigue with the entire program may be coloring students' perceptions of this component.

D. THE FAMILY COMPONENT

1. Implementation Fidelity

The HFL Family Component had three program objectives. We will discuss each of them separately.

a. Orientation Sessions.

HFL staff offered an orientation session to the families of students taking the HFL program. This was usually part of the fall "Open House" held by most middle schools or another appropriate forum according to the following schedule:

Age-Appropriate Schools

1988-89:	30-45 minute introduction to HFL
1989-90:	15 minute refresher session
1990-91:	15 minute refresher session

Intensive Schools

1989-90:	45-60 minute introduction to and explanation of HFL.

We enjoyed an 89% success rate in terms of scheduling the orientation sessions according to the project's timetable. The actual attendance figures provide a far richer picture of how many parents we reached with this strategy and are displayed in the table below:

TABLE V-6:

ATTENDANCE AT PARENT ORIENTATION SESSIONS

Age-Appropriate Sites	6th Grade	7th Grade	8th Grade
Gideon	60	none held	none held
Hillary	125	12	10
Paradise	250	100	75
Goldstream	50	35	25
Artery	125	30	15
Hepville	none held	15	12
Crandle	85	1	0

Intensive Sites	One Orientation Session
Burton	150
Peterson	60
Molar	30
Milan	100
Zurich	80
Salem	75

Some general statements can be made about these attendance figures. When the HFL orientation session was embedded in the routine fall "Open House," attendance was high; of those, we achieved the highest attendance when the principal announced the

HFL time slot and directed parents to the proper location over the PA system. Schools having a long history of parental involvement demonstrated high attendance levels. However, in a few sites having a high level of trust between the school district and parents, attendance rates were actually lower than anticipated. The first year of the Age-Appropriate implementation drew the highest attendance levels; we attribute the decline over the next two years primarily to the high comfort level parents felt with the program after experiencing the 6th grade portion.

Issues with the principals accounted for the three cases where no orientation session was held. In two cases, the Principal was very ill and the librarian was serving as Acting Principal. An HFL orientation session was simply not a priority and was never scheduled. In the third case, the Principal unilaterally declined a fall orientation session, but did allow the project teacher to hold a parent meeting during the first week of the January implementation. Twenty parents attended. Following successful program delivery in 1988-89, the Principal welcomed the orientation sessions for the next two years, leading us to the conclusion that he did not want to allow a forum for possible controversy over HFL prior to the 6th grade portion.

b. Dissemination of Family Packets.

Another goal was to create and disseminate via the mail 3,000 educational packets to the parents of HFL students which included background information on HFL and its approach to prevention, parent-child communication techniques, discussion formats, glossaries, tip-sheets, recipes and activities.

Included in these packets were inter-active family exercises that would parallel the curriculum being delivered in the school component and would earn credit if completed and signed by both an adult and a student. We used the completion rate for these activities as a measure of success for getting families involved in the program. Students were awarded prizes if they completed all of the home assignments or missed only one. Prizes were awarded to 59% of the Intensive students and 53% of the Age Appropriate students. The completion rate ranges from 38% in some schools to 75% in others.

c. Recruiting Parents for the HFL Task Force.

The final goal was to recruit and involve parents of the treatment cohort of students in the HFL Task Force formed as part of the Community Component. Ten of the 13 treatment sites enjoyed parent participation in the overall community organizing effort, including the Health Advocacy Event itself. However, upon close examination of the operations of local Task Forces, only 8% of the Intensive parents and 5% of the Age Appropriate parents in our respondent pool reported attending any meetings.

2. Themes from Parent Feedback Surveys

Parent survey forms (see Appendix B) were mailed to parents of all students approximately three months after the final HFL implementation in their child's school. Of the 1,885 questionnaires distributed, we received 554 responses for a 29% return rate. The parents in the Intensive schools returned letters at a higher rate than the Age Appropriate parents with 34% and 25%, respectively.

The difference in return may be the result of easier recall regarding the program. Although the time lapse between the implementation and the parent survey (3 months) was the same for all schools, the intensive parents had the advantage of recalling the complete program after one semester of implementation. The age appropriate parents attempted recall of the program which took place over the time frame of 3 years. This may have discouraged some age appropriate parents from completing the questionnaire.

The parents who responded were older and more educated than most parents of middle schoolers. Over 85% of the parent survey respondents were mothers, between the ages of 46 to 55. More than 50% had a technical school or college education. Fifty-two percent of the respondents had a female child in the program vs. 48% who had a male child. While this sample is not representative of the total population of parents of HFL students, the data reflects the qualitative data we have collected.

a. Program Impact on the Child's Behavior.

Overall, respondents felt the HFL program had or will have a positive impact on their children's health behavior. In the area of skill development (Table V-7), respondents felt their child could resist peer pressure (64%), could exert positive peer pressure on their friends (60%), felt their child promoted improving health behavior in the home (77%), and felt their child could counter negative health media messages (71%). Age Appropriate parents tended to be more positive about their child's skills than the parents with children in the Intensive schools.

TABLE V-7:

NOTICED CHANGES IN CHILD'S SKILLS

STATEMENTS	OVERALL	AA	INT
Ability to resist peer pressure.	64%	70%	60%
Promoting improved health behaviors.	77%	79%	75%
Exert positive peer pressure on friends.	60%	67%	55%
Countering negative media messages.	71%	75%	68%

Parents tended to see little immediate change in their child's behavior regarding eating regular meals, use of tobacco and other substances, and appropriate sexual activity (Table V-8). Parents reported the most immediate change in the nutrition area as far as choosing healthier foods and eating less fat. Many parents reported no change to the substance use statements and sexual interaction statement, but added a qualifying comment such as "not applicable" or "my child is not using or engaging in this behavior." Less than 2% of the respondents felt the program had or would have a negative effect on their child.

TABLE V-8:

NOTICED IMMEDIATE IMPACT ON CHILD'S BEHAVIOR

STATEMENTS	Positive Change			No Change		
	Overall	AA	Int	Overall	AA	Int
Make healthier food choices.	59%	55%	61%	39%	42%	37%
Eating regular meals.	29%	31%	27%	67%	65%	69%
Eating less fatty foods.	47%	47%	48%	50%	51%	47%
Use of smoking tobacco products.	25%	31%	21%	70%	61%	76%
Use of smokeless tobacco (chew/dip).	25%	31%	21%	71%	63%	76%
Use of marijuana or other drugs.	24%	29%	20%	72%	65%	76%
Use of alcohol.	24%	29%	21%	71%	64%	76%
Have appropriate interaction with the opposite sex.	29%	33%	27%	58%	52%	62%

Overall, parents anticipate a positive impact on their child's behavior at some future time (Table V-9). Parents with children receiving the Age Appropriate version tended to be slightly more positive about the program's immediate and future effect than the parents of students getting the Intensive version, particularly in the tobacco and substance use areas. Although still positive, parents were less confident of a program impact on sexual activity. It is unclear from the parent survey data why there is this lower parental anticipation for a positive impact on their child's sexual activity behavior.

TABLE V-9:

FUTURE IMPACT ON CHILD'S BEHAVIOR

STATEMENTS	Positive Change			No Change		
	Overall	AA	Int	Overall	AA	Int
Will choose healthier foods.	78%	78%	78%	16%	17%	15%
Will eat regular meals.	55%	59%	53%	36%	35%	37%
Will eat less fatty foods.	69%	69%	69%	25%	24%	25%
Will not use smoking tobacco products.	82%	86%	79%	13%	8%	15%
Will not use smokeless tobacco	82%	84%	80%	13%	11%	15%
Will not use marijuana or other drugs.	83%	86%	80%	12%	8%	15%
Will not use alcohol.	76%	80%	74%	15%	11%	15%
Will refrain from sexual intercourse.	63%	65%	61%	16%	13%	18%

b. Family Mobilization.

The **Healthy for Life** program included a variety of family-oriented activities. These activities included three parent-child assignments per segment, and a packet of resource materials mailed to families for each segment. Parents were asked on the survey to recall their involvement in these family-oriented activities.

Mailed Resource Materials. Ninety percent of the parents do not remember receiving the mailed resource materials, but did respond to subsequent questions when asked about specific materials. Over 80% of the parents indicated reading most of the materials mailed, with little difference between the Age Appropriate parents and the Intensive parents. Most of the parents found the material at least somewhat helpful, especially the parent brochure and family activities. Fewer than 9% thought the materials were not at all helpful.

Approximately 67% of the parents reported completing at least one of the three family activities included in the parent mailings and found them easy to do. The Intensive parents reported a higher completion rate than the Age Appropriate (Table V-10), but as indicated earlier, this may be the result of recall difficulties due to the lag time between implementations at the age appropriate schools.

TABLE V-10:

COMPLETED FAMILY ACTIVITIES

STATEMENTS	OVERALL	AA	INTEN.
Rate that fat.	67%	51%	78%
Plan a party.	68%	58%	75%
The People's Court.	67%	60%	71%
None of these.	11%	10%	8%

Table V-11:

HOMEWORK ACTIVITIES

STATEMENTS	Strongly agree	Agree	Disagree	Strongly disagree
The total number of homework activities was about right.	16%	76%	5%	3%
These activities were a good way to encourage communication.	42%	52%	4%	2%
I was <u>not</u> willing to complete all activities.	6%	15%	54%	25%
The activities were effective in clarifying family values about alcohol, drugs and tobacco.	33%	58%	7%	2%
The activities were effective in clarifying family values about sexual activity.	33%	53%	11%	3%
The subject matter of the activities was appropriate.	31%	56%	7%	6%

Parent Opinion of Homework Activities. Parents were asked to indicate their agreement to general statements about the homework activities. Table V-11 illustrates parent opinion about the assignments. Parents were positive about the activities and the subject matter. There was little difference between the Age Appropriate parents and the Intensive parents, therefore it is not reported here.

The parents responses to these questions were verified by data from the student

interviews. We asked the students to respond on a Likert scale to how well their family liked **HFL** with 1 being most negative and 5 being most positive. The responses were 4.14 or very positive. The response to the parent interviews was similar (3.94). This answer is somewhat surprising since it contradicts observational data that several of the students disliked doing the interviews with their parents.

Parents were asked to indicate their perception of their child's response to **Healthy for Life** and their opinion regarding the school continuance of the program. Overall, parents were very positive regarding their child's enjoyment of the program (86%), their expectation of positive results (91%), and supportive of school continuation of the program (88%). The differences between the parents from Age Approporiate schools and the Intensive schools was again nominal, with the exception of school continuance of the program. Parents from Age Appropriate schools favored continuation (92%) slightly more than the parents with kids in the Intensive version (85%).

An excellent indicator of student views of the homework assignments is the number who completed the homework and parent interviews in order to win prizes. Fifty-nine percent of the students in the Intensive schools and 53% of the students receiving the Age Appropriate version completed all of the outside work or only missed completing one assignment on time.

Community Events. Of the parents responding to the survey, 38% indicated they did not attend any of the **HFL** community events, such as school-sponsored open houses, community task force meetings, or health advocacy events. Of the parents who did attend these community events, 47% attended an open house where parents could learn about the **Healthy for Life** program and meet **HFL** staff. Seven percent indicated involvement in **HFL** community task force meetings. Twenty-one percent indicated participation in other community events, such as school-community sponsored health advocacy events. There was some variation between the Age Appropriate schools and the Intensive schools on parent participation in these **HFL** community events. The parents at Age Appropriate schools were more likely to attend **HFL** open houses than the parents with students receiving the Intensive version (56% vs 42%). However, the Intensive parents reported slightly higher involvement in the community task force meetings (8%) than the Age Appropriate parents (5%). (It should be noted, the **HFL** community program coordinator had a longer time period to recruit and work with parents in the intensive communities (12 weeks) on task force development than the age appropriate schools (4 weeks).

3. Themes from Interviews and Observations

The following are reoccurring themes taken from the parent interviews, family activity assignments, observations of interview discussions in class, and student and teacher interviews.

a. Confused Messages About The Parent Interviews.

Teachers carefully told students that they did not have to write down or reveal their parents' answers. However, on the activity due date, the curriculum discussion questions asked students to reveal the content of parent-child communication if they felt comfortable doing so. These lessons were structured around the contents of the parent interviews. It appeared that some students are unable to differentiate between the communication process and the content of parent-child interaction. This confusion may have been a factor in limited student participation in class on discussion day and the difficulty the Peer Leaders had in drawing students into the discussion.

b. Increased Resistance to Doing Interviews.

Several reasons came to light which could account for a reduction in the completion rate of parent-student interviews as we progressed through the three segments of HFL.

* The parents' perception of the assignment was dependent upon the communication from their child about the intent of the interview. If the student was unclear as to the motivation behind the student interviews, some parents were more likely to interpret the assignment as invasive.

* Some parents were uncomfortable with revealing past behaviors to their children and secondarily, to the child's classmates.

* Some students and parents were uncomfortable with revealing parents' responses in classes.

* A number of parents had the perception that educators (or other professionals) were telling them how to raise their kids.

* The interviews seemed repetitive, especially in the Intensive schools.

* As the interview topics became more sensitive, they may have brought out communication patterns in some families that make discussion more difficult between parents and children i.e. parents became more authoritative, less tolerant of the child's opinion.

* Some of the resistance may be because the parents thought the activities were inappropriate for the developmental level of their son or daughter.

* Some family activities were judged by parents and students as ridiculous or directions as unclear.

4. Themes from the Student Feedback Questionnaire

Overall, student satisfaction with the parent assignments was high (Table V-12), although students didn't report a great deal of discussion with parents about HFL. Students receiving the Intensive condition indicated slightly higher interaction with parents about HFL than those receiving the Age Appropriate version. As with overall satisfaction, the Age Appropriate students show a decline in student-parent interaction between 6th and 8th grade.

TABLE V-12:

PARENT-STUDENT INTERACTION DURING HFL

STATEMENTS	OVER -ALL	INTEN.	AA	GIRLS	BOYS	P.L.
I discussed HFL with my family.	47%	52%	45%	51%	43%	57%
My family liked their part in HFL.	75%	69%	77%	78%	72%	81%
The assignments done with my parents were helpful.	71%	82%	79%	83%	78%	83%

(Note: The Age Appropriate schools had 3 four-week implementations, therefore there were three waves of questionnaire data to analyze. The percentages reported here for the Age Appropriate condition is an average of the three waves.)

The students in the Intensive condition were slightly more positive (81.8%) about the helpfulness of assignments with parents than those in the Age Appropriate condition (79.4%).

There was a steady decline in the number of students who discussed HFL with their family during the 3 years of the Age Appropriate version. 54.5% of the 6th graders discussed the program with their parents but only 37.7% of the 8th graders. Families liked their part in HFL better in Age Appropriate schools than in Intensive schools: 76.5% in the Age Appropriate schools vs. 69.2% in the Intensive schools. Again, there was a decline over the three years of the Age Appropriate version from 88% in 6th grade to 62% in 8th grade.

E. THE COMMUNITY COMPONENT

In addition to carrying out the school-based curriculum and peer component, HFL staff implemented community organizing activities at both Intensive and Age

Appropriate sites. The HFL program model is based on affecting social influences in the school, peer, family, and community networks. The general purpose of the HFL community component was to mobilize the adult community to support the messages contained in the school curriculum.

This section of the report contains the findings relative to the HFL community organizing efforts. Four main areas will be discussed: a review of the process of HFL community organizing including the original grant objectives, implementation of the community component at each site, the relative success of HFL community organizing, and themes that emerged from these findings. It must be noted that due to the majority of our community organizing efforts in Overton falling under our second NIDA grant, Overton is omitted from some portions of this analysis.

1. A Review of the Process and Implementation of HFL Community Organizing

Typically, community-level prevention programs are very complex. The dynamic and fluid nature of social interactions in communities have provided a challenge to programmers attempting to construct paradigms for community-level interventions (Jackson et. al, 1989; Room, 1989). It may be that we have not adequately addressed the fluidity and site specificity inevitably characterizing interventions at this level. Rather than attempting to construct programming models to be used at all times and in all places, we see this part of the study as contributing to an exploration of what sort of interventions may fit in particular settings. Therefore, the purpose of this part of our evaluation was not to test a model for prevention community organizing per se, but to describe how certain site conditions may have affected the implementation of organizing efforts.

The following process steps formed HFL community organizing efforts and reflect the original objectives:

a) Activating a community group (task force) dedicated to promoting the HFL behavior messages on a community-wide basis. The HFL community organizer was to insure that the composition of the community groups reflected the significant sectors of the community (i.e. parents, schools, business, law enforcement, religious leaders, media, civic leaders). In some sites, such a group already existed. For these sites, the HFL community organizer often worked with this group. Also, staff encouraged the leadership of the community groups to move away from reliance on school personnel and onto parents or key community leaders thereby facilitating the transfer and ultimate institutionalization of the HFL approach in each community.

b) Implementing an event advocating the five positive health behaviors targeted by HFL. The task force was to carry out an event or activity that would reinforce the HFL messages in the community. This included

planning the event, publicity, media coverage, solicitation of donations from businesses or agencies in the community and committing time during the event.

c) Conducting some sort of follow-up. After the event, the community organizer conducted follow-up meetings in which the success of the organizing was discussed.

Two of the original process objectives for HFL community organizing were not carried out due to staffing limitations: 1) trainings for community health care providers and youth leader trainings in the HFL approach, messages and activities, and 2) the formation of three Advisory Councils (one for each condition) which were to meet three times per year in Madison to share information about the project and successful HFL activities, problem-solve, and advise the HFL staff on issues of concern at the grassroots level.

Further, the program objective of holding three HFL-organized community events per implementation (at the end of each segment for the Age Appropriate sites and during the 12 week implementation period for the Intensive sites) proved to be unrealistic. There were two reasons for this. First, the demands that this amount of activity would have placed on community members was unrealistic and possibly would have been counter-productive if carried out as planned in the original process goals. Second, there were insufficient funds to hire staff to cover this level of community organizing.

Of the Age Appropriate communities, two sites had no community involvement, three sites had one event with community involvement, one site had two events with community involvement, and two sites achieved three events over the three years with community and adult involvement.

The three process goals given above were developed by balancing several facets of community organizing. On one hand, process goals were to be specific enough to yield results that would be visible within the community and that would be comparable across sites.

On the other hand, these goals were to be broad enough to afford a framework for meaningful input from local community members. These process goals are characterized by a considerable amount of freedom for community members to develop their own agenda. Local tasks forces decided:

1) The topic of the intervention (alcohol, tobacco, drugs, sexuality, or nutrition),
2) The format of the event itself,
3) The target audience of the event (though the target audience in some direct or indirect way was to include youth), and
4) The nature of the connection between the students in the school HFL

program and the adult community task force in implementing the event.

The following Table V-13 shows the extent to which each of the components of the HFL program model (students-peers, family-parents, and community) were involved in HFL efforts to expand health messages beyond the school at each site.

Table V-13:

INVOLVEMENT IN THE HFL COMMUNITY ORGANIZING EFFORT

Site	Student Involvement Thru HFL School Curriculum?	Student Involvement Independent Of School?	Parent Involve-ment?	Involve-ment from overall community?
Milan	Yes	No	Yes	Yes
Burton	Yes	Some	Yes	Yes
Paradise	Yes	No	Yes	Yes
Hillary	Some	No	Yes	Yes
Salem	No	Yes	Yes	Yes
Molar	Yes	No	Yes	Some
Goldstream	Yes	No	Some	No
Artery	Yes	No	Some	Some
Gideon	Yes	No	Some	Some
Hepville	No	No	No	No
Crandle	Some	No	Yes	Yes
Zurich	No	No	No	No

During the student interviews, the student responses to the health advocacy event varied depending on how well the organizing went in their community and school and how successful the event was. In general, the students found the health advocacy event fun or interesting but challenging and a lot of hard work. Complaints were that things were too unorganized and too few people took responsibility and helped out. In fact, this occurred in a couple of Intensive sites, which most of these responses represent. Many of the students appreciated learning planning skills, that the health advocacy event was in their control and that they made most of the decisions about it. In effect, the event was their own. A few of the students mentioned that it was exciting knowing that

the community would be involved.

2. Findings About the Relative Success of the Community Component

The following data collection methods (see Appendix B) were used in analyzing the community organizing component of the HFL program:

1) staff logs of organizing efforts at each site;
2) interviews with key informants (community members who participated in HFL community organizing efforts);
3) interviews with HFL staff involved in community organizing efforts;
4) observational notes from HFL community events; and
5) document analysis.

The analytical categories used to describe the success of HFL community organizing were derived in part from the process objectives formulated at the outset of the program and in part from the features of HFL community organizing that emerged during the program. These analytical categories fall into two basic groups: 1) formation of the group and planning of community activities and 2) the effectiveness of the activities themselves.

a. Formation and Planning of Community Efforts.

Four elements were combined to examine the formation of the HFL Task Force and the planning that went into the community efforts on behalf of HFL.

i. Breadth of representation. Was there broad-based involvement in the HFL organizing effort; to what extent were diverse groups in the community involved in this effort?

ii. Intensity of involvement. How many meetings were held; how many people were successfully recruited to participate in planning/informational meetings.

iii. Community Sponsorship of Activities. Was there any form of community sponsorship of HFL community activities; were donations of labor, materials, or funds solicited?

iv. Media Contact. Was there any media coverage of HFL community activities and was the purpose of HFL community organizing communicated in a public forum?

b. Effectiveness of Community Activity.

Three elements were considered when looking at the effectiveness of the community activity in promoting the HFL messages among adolescents in a given community.

i. Topic Clarity. How clearly was an HFL health message integrated into the event?
ii. Intensity of Event. Did levels of community participation in the activity meet expectations?
iii. Post-HFL Effects. Were any HFL activities maintained after the formal involvement of HFL program staff?

The following table describes HFL community organizing according to the first of the two major criteria given above: formation and planning of efforts. This Table will be followed by a Table describing HFL community organizing according to the second major criteria: effectiveness of community event.

TABLE V-14:

SUCCESS OF THE PLANNING EFFORT

Site	Breadth Community Involvement	Intensity of Comm. Involvement in planning	Community Sponsorship Achieved?	Media Contact Achieved?
Milan	High	High	Yes	Yes
Burton	High	High	Yes	Yes
Paradise	High	High	Yes	Yes
Hillary	High	High	Yes	Yes
Salem	High	High	Yes	Yes
Molar	Med	Low	Yes	Yes
Goldstream	Med	Med	Yes	Yes
Artery	High	Med	Yes	Yes
Gideon	Low	Low	No	Yes
Hepville	Low	Low	No	No
Crandle	Low	Low	Yes	Yes
Zurich	Low	None	No	No

TABLE V-15:

SUCCESS OF COMMUNITY EVENT

Site	Health Message Clarity	Intensity of Community Involvement: Attendance	Post-HFL, Effort Sustained?
Milan	High	High	Some
Burton	High	High	Yes
Paradise	High	High	Some
Hillary	High	High	Some
Salem	High	High	Some
Molar	Med	Med	No
Goldstream	Med	Med	No
Artery	Med	Med	No
Gideon	Low	Low	No
Hepville	Med	Med	No
Crandle	Med	Med	No
Zurich	None	None	No

3. Emergent Critical Issues

Though the purpose of this section is not to determine what forms of community organizing "will work" in all times and places, we can discuss some themes that emerged from our efforts. It is important to point out that communities are dynamic and fluid. Hence, it is difficult to derive models or principles for community organizing that will be generalizable to all such efforts. Many times the difference between a successful and unsuccessful community organizing effort hinged upon factors that were subtle and that may have been out of the control of the program staff.

The following is a discussion of those factors we concluded were powerful in facilitating or impeding the community organizing effort.

a. Format and Framework of the Organizing Effort.

Those events that were successful tended to have a framework that enabled a broad range of ways that community members could participate in the event. These events had a clear health message while maintaining a broad framework within which community members were offered a wide choice of what form their participation would take. Events that were less successful tended to limit the ways community members could participate. Similarly, more successful events were those which were based on themes or activities that had appeal to both youth and adults.

b. Treatment Condition.

Of the sites that were rated as having high success, three were in the Intensive condition and two were in the Age Appropriate. Of the sites rated as having medium success, one was Intensive and three were Age Appropriate. Of the sites rated as having low success, one was Intensive and two were Age Appropriate. It was not the case that Age Appropriate sites had greater levels of successful community organizing than did the Intensive sites. This finding was counter-intuitive because it was expected that Age Appropriate communities, having an implementation that spanned over three years, would achieve greater levels of community organizing efforts.

By examining what happened on an everyday level, we can discern several factors that may have contributed to this finding. Clearly, achieving three community organized events in the Age Appropriate communities was overly ambitious. At most sites, this demanded a greater time and energy commitment than what most community members were able to devote. Carrying out one event per implementation site was more realistic given these constraints.

As mentioned earlier, funding for staff limited our personnel resources considerably. Since the Intensive schools all occurred during one year, 1989-90, they were given priority over the Age Appropriate schools meeting for the second segment of the curriculum that year.

For Age Appropriate sites, the community organizer was usually active in the community for the weeks just prior to and during the four week school implementation. Since most sites had only one main community organized event, this left a limited time period within which this main event could be planned. For the Intensive sites, the community organizer could be active in the community throughout the entire 12 weeks of the school program implementation. Hence, as a rule, more time and planning was devoted to events in the Intensive communities than in the Age Appropriate communities.

c. Working with Existing Groups vs. Forming an HFL-Specific Group.

The decision to work with an existing group or to form a new HFL group was often a difficult one for community organizers. It seemed that this decision alone did not affect the success of the community organizing effort; successful and unsuccessful events used both models. Rather, the more important factor had to do with the characteristics of the group the community organizer chose. Generally, when the organizer worked with existing groups, events were most successful when the group had a: 1) well-established form of leadership that was not threatened by an "outsider," 2) platform that was consistent with the HFL message, and 3) well-established identity and was not "floundering" for its identity or purpose. When groups were not well-established and had unstable leadership, it was more likely that HFL community organizing would be perceived as competition rather than cooperation.

d. The Acceptance of the School Program in the Community.

The existence of a controversy surrounding the sexuality portions of the HFL curriculum did not in itself have a detrimental effect on HFL community organizing. Indeed, one of the most successful events occurred in a community having a very high level of controversy.

e. Timing of the Community Organizing in Relation to the School Event.

The issue of what relationship the community event should have with the school curriculum was somewhat confusing for teachers involved in the HFL school program, for HFL community organizers, and for community members themselves. Frequently, the question of the relationship between the school and community components of the program was decided by how the timing of each component was played out. If the community group was at a stage in their organizing so as to allow the input of the HFL students, this option was considered.

The success of the event itself did not seem to be contingent upon the students' involvement through the HFL school curriculum. Some events that included both the students' Health Advocacy Event and the community/adult event were successful where others were not. It may be that specifying a particular school/community relationship compromises the flexibility needed to bring about community ownership of the program on the one hand, and student ownership of the issue on the other hand. Since it does not seem that this cooperative relationship was a necessary part of a successful student or community event, it may be counter-productive to prescribe a particular relationship for the school/community component.

f. The "Event" Orientation of the Community Organizer.

In some sites, there was a conflict of agendas between the community organizer and the community members involved in the **HFL** effort. These conflicting agendas were largely latent and emerged during the course of the community organizing at the site. The community organizer, to meet the goals of the grant, felt the need to create a visible product within the time frame of the program implementation in the school. Local community members, on the other hand, had a limited commitment to the grant per se. Instead, their agenda was more gradualist and was often centered around issues not related to an event or product: forming a group identity, reflecting on the problem of substance abuse, or creating a support group for parents of youth. It may be that the time frame allowed the community organizer was too brief to allow the local group to identify problems and create an activity that was consistent with this identity.

This issue may have been one of the main factors that inhibited the maintenance of the **HFL** community effort after the formal involvement of **HFL** staff. In order for an effort to be sustained, the gradualist, non-event orientation of local prevention efforts may have to be recognized and incorporated. Other major factors may be the presence of a "paid" community organizer and the availability of resources for such tasks as mailing, printing and the use of computers.

g. Topic Selection.

Two main topic areas were selected by community members for their organizing: 1) substance abuse, and 2) a general health theme or general prevention. Students, on the other hand, tended to choose topics that are socially "safe" for them: nutrition and a general health theme. Students tended not to choose substance abuse (particularly alcohol use) for their health advocacy topic. The school and community component complemented each other in topic selection. A problem, however, was that neither students nor adults chose sexuality as a primary topic for advocacy. Though both students and adults involved with the **HFL** program felt that there was a significant need for prevention activities in this area, sexuality was too loaded a topic to be chosen in a public forum. Although a few events contained small activities dealing with sexuality within the context of the larger event, advocacy activities were largely not centered around sexuality.

F. COVARIATE RANKINGS

1. Overall Implementation Ranking

We have completed a qualitative ranking of schools within each condition. The rankings are based on ratings by the teachers involved in each site, and the process evaluators. Seven factors were included in the rankings: HFL teacher performance, co-teacher performance, school climate, student's previous education, administrative support, parent and community support and external factors. The rating sheet used by the HFL teachers to generate this ranking is attached in Appendix A. The schools with the best implementations are at the top of the rankings.

TABLE V-16:

OVERALL IMPLEMENTATION QUALITY RANKINGS BY SCHOOL

Intensive	Age Appropriate
1. Burton	1. Hillary
2. Milan	2. Goldstream
3. Salem	3. Gideon
4. Peterson	4. Paradise
5. Zurich	5. Crandle
6. Molar	6. Artery
	7. Hepville

This was a key ranking to use as a covariate in our overall data analysis. The Implementation Quality Rankings will be discussed below.

2. Health Education Profile

It became clear to the HFL staff early in the implementation of the program that the students in some schools adapted quickly to our program's classroom style and others had never encountered anything like HFL. Therefore, we made an assessment of the formal education in each district as it would influence the implementation of HFL. This was later considered in the outcome analysis as a covariate to determine if previous educational experiences influenced our results.

Many authors have called for a greater understanding of how setting factors affect program outcomes (see, for example, Braverman & Campbell, 1989; Holtzman, et.al., 1991; Mauss, et.al., 1988). However, few evaluations of health risk prevention programs have included an assessment of setting factors. Further, those setting factors that are considered usually do not go beyond standard demographic descriptors such as class, gender, and race.

One relatively unexplored setting factor is that of inter-programmatic effects. As Braverman & Campbell (1989) point out, there is a great proliferation of prevention programs currently operating. Programs have been tested, however, as if they existed in isolation.

Inter-programmatic effects present two problem areas in the analysis of school-based prevention programs. First, it is unlikely that the control or comparison sites have had no health program exposure. Hence, it is likely that students in the control condition have been exposed to program messages similar to those of the experimental condition, making comparison between the groups problematic. Second, it is likely that students in the experimental condition have been exposed to multiple program messages throughout their school careers. Because the effects of experiencing multiple program messages has not been explored, there is little basis for predicting the effects of multiple program exposure.

The purpose of this data collection was to rank all **HFL** sites according to how much exposure **HFL** students had to non-**HFL** health education experiences during their kindergarten through eighth grade careers. This ranking will be used as a co-variate in analyzing the outcome measure.

Since little research has been done on the cumulative effects of exposure to school-based health education, it was difficult to postulate how this co-variable will affect **HFL** program outcome. Open-ended interviewing of students, parents, and school professionals carried out in another part of the study of **HFL** suggests conflicting hypotheses.

The idea that more and earlier school-based health messages would bring about better health behavior results was firmly entrenched among school professionals and, to a lesser extent, parents of **HFL** students. This was particularly true for those behaviors that carry heavy moral and social loading: drug use, alcohol use, tobacco use, and sexuality.

This was not the case, however, for the students themselves. The idea that "more is better" and "earlier is better" was largely not held by students. On the contrary, their responses during open-ended interviews would strongly suggest the existence of a saturation effect, or perhaps a threshold effect. A very prevalent and spontaneously expressed theme during student interviews was the idea that too many school-based messages in this area would be counter-productive.

a. Methods

A close-ended, structured interview instrument was developed and piloted to assess the health education experiences of the cohort of students involved in the **HFL** study at each of the 21 **HFL** sites. (A copy of the instrument is provided in Appendix B.) The instrument assessed intensity of prior or concurrent exposure to school-based

health education in three areas.

The following is a description of these areas as well as how measures were derived in each area.

Pre-packaged classroom and developmental guidance programs. Respondents indicated from a list of pre-packaged programs those programs that existed in their school. They were then asked how long the program had been in the school and what year-grades had the program. In this way, a judgement could be made about whether the **HFL** cohort had been exposed to the program. To give a measure of intensity of program exposure, respondents were asked how many session-hours of packaged classroom programs had been used and what percentage of students were exposed to developmental guidance programs.

General curricular and extra-curricular health education experiences by topic: sexuality, tobacco use, alcohol use, drug use, nutrition, and traditional health education (hygiene, body systems, etc.). Respondents were asked to indicate how many session-hours they felt were devoted to each of these topics for curricular and extra-curricular instruction at their school.

Health education instructional strategies. Respondents were asked to read eight cards. Each card contained a written definition of a strategy used to teach health messages. Respondents were then asked to indicate what they felt to be the total number of hours the particular strategy had been used to teach health messages in their school.

Because measures of the intensity of exposure to non-**HFL** experiences were to be derived for the **HFL** cohort throughout their kindergarten to eighth grade careers, respondents were recruited in order to provide a profile of both middle school and elementary level health education. The following key actors were recruited at each of the 21 **HFL** program sites:

1) Principal of the elementary school feeding the most students into the middle school having the **HFL** program.

2) Guidance Counselor of this elementary school.

3) School Nurse of this elementary school.

4) Principal of the middle school having the **HFL** program.

5) Health Teacher of this **HFL** middle school.

6) AODA Coordinator of this **HFL** middle school.

7) Guidance Counselor of this **HFL** middle school.

8) District Health Education Coordinator.

9) District Curriculum Coordinator.

All these key actors were interviewed at each of the 21 HFL sites. However, it was common for one individual to hold more than one position. Hence, a total of 139 respondents were interviewed for the study.

A common sampling problem in multi-site studies is that of site-specificity of actors and positions (Turpin & Sinacore, 1991). The same position may have different meanings at different sites; these positions have varying degrees of distance from the health education endeavor at each site. To alleviate this problem, a confidence rating was introduced. After responding to each question area, respondents were asked to rank their confidence in the accuracy of their answer: 1 = a distant guess, 2 = somewhat accurate, 3 = quite accurate.

All interviews were carried out in person and on site.

b. Findings

Table V-17 provides a summary of the rankings for all 21 HFL sites. This is followed by an explanation of how these measures were derived.

The values given in **Column 1 (Exposure to Pre-Packaged Curricula)** of this table show the intensity of HFL cohort exposure to packaged health education curricula and developmental guidance programs. This measure was derived in the following way. First, for each packaged program a respondent indicated was in place at their school, an intensity judgement was made, giving the extent to which the program was in use. This was then multiplied by the respondent's confidence rating, giving the adjusted program intensity judgement. A weighted mean of respondents' intensity judgements was then derived for each program by dividing the sum of the respondents' adjusted program intensity judgements by the sum of these respondents' confidence ratings. The value in column 1 is the sum of the weighted means given for all programs indicated at the site. Next to this sum, after the slash (/), is the rank of each sum down the column. The site having the greatest intensity of packaged programming received a rank of "1"; the site having the least intensity received a rank of "21".

A problem arose when respondents from the same site disagreed on what programs were in place in their school. This was resolved by only counting those programs for which the sum of the confidence ratings given by all respondents indicating the existence of the program exceeded 2, or "somewhat accurate." For example, if only two respondents indicated the existence of QUEST at their school and they each rated their answers as "a distant guess" (confidence rating of 1), the combined confidence ratings for this questions would be 2. It was them assumed that these respondents' answers were not accurate in this case.

The values given in **Column 2 (Exposure to Health Education Topics)** are a general measure of the number of session-hours the **HFL** cohort was exposed to health topics during their kindergarten through eighth grade careers. This measure was derived in the following way. Each respondent was asked to indicate the number of session-hours students in their school had been exposed to health education in the five **HFL** topic areas as well as to "traditional" health education (hygiene, body systems, etc,). A weighted mean was then derived in each of these six topic areas in the same way described above for Column 1 (the sum of the adjusted intensity judgements was divided by the sum of the confidence ratings, giving a weighted mean within each topic). The value given in Column 2 is the sum of 18 weighted means: 6 weighted means for each topic in each of three response areas: 1) in-class curriculum in the elementary school, 2) in-class curriculum in the middle school, and 3) extra curricular events in the middle school. These values have been ranked the same way as Column 1.

Columns 3 (Exposure to Health Education Strategies) and **3.5 (Exposure to HFL Strategies)** show the extent to which the **HFL** cohort has been exposed to strategies used in health education and the **HFL** program. In the same way described above, a weighted mean was taken across all respondents' answers for each strategy. Since eight strategies were contained in this item, column 3 is a sum of eight weighted means. **Column 3.5** is the sum of the six weighted means for the six strategies specific to **HFL** multiplied by a factor of two. (These strategies are peer leadership, parent involvement, role play, peer refusal skills, health advocacy, and public commitment.) This was done in order to inflate the value of exposure to **HFL**-specific strategies in the final ranking. These values have been assigned a ranking in the same manner as values in Columns 1 and 2.

Column 4 (Sum of Ranks), the sum of the ranks of columns 1, 2, 3, and 3.5, is a summary rank score for each community. A ranking of each community from 1 - 21 is given in column 5 (Final Ranking). A rank of "1" is the site having the greatest reported intensity of exposure to health education; a rank of "21" is the site having the least reported exposure.

Missing is the measurement of extra-curricular activities in the six topic areas at the elementary level. During the pilot testing of the instrument, it became clear that there were very few of these types of events at the elementary level. Further, it was very difficult for respondents to make a judgment of how many extra-curricular health events the **HFL** cohort would have been exposed to during their elementary careers. Hence, this was dropped as an item in the instrument.

TABLE V-17:

RANKINGS ON PRIOR HEALTH EDUCATION

SITE	1 Exposure to Pre-packaged Curricula	2 Exposure to Health Educ. Topics	3 Exposure to Health Educ. Strategies	3.5 Exposure to HFL Strat-egies	4 Sum of Ranks	5 Final Ranking
Pineville	15.66/15	39.12/8	9.74/12	10.74/10	45	12.5
Goldstrm	19.35/8	42.01/3	8.00/18	9.5/16	45	12.5
Hillary	19.75/7	41.71/4	12.63/3	14.62/5	19	3
MuddyW	16.62/13	40.27/6	12.06/5	14.44/6	30	4
Burton	20.13/6	44.21/2	8.54/14	9.62/13	35	6
Zurich	18.75/9	25.52/21	11.90/6	7.4/19	55	15
Klinke	13.37/17	27.44/17	9.25/13	5.25/21	68	20
Hepville	6.23/21	36.93/11	10.86/10	14.00/7	49	14
Milan	22.65/4	37.26/10	10.00/11	12.80/9	34	5
Molar	18.25/11	26.12/20	8.50/15	10.50/11	57	16
Crandle	28.40/2	39.00/9	8.40/16	10.40/12	39	9.5
Peterson	22.04/5	40.91/5	11.00/9	7.17/20	39	9.5
Wrigley	15.83/14	33.27/14	7.89/19	8.88/17	64	17
Salem	12.66/19	39.19/7	11.24/8	13.78/8	42	11
Gideon	17.77/12	29.92/16	11.76/7	15.08/3	38	8
Pulptown	18.45/10	26.44/18	12.22/4	14.88/4	36	7
Paradise	27.62/3	35.12/13	13.53/1	17.6/1	18	2
Artery	15.08/16	26.27/19	8.24/17	9.6/14.5	66.5	19
F.Rogers	12.90/18	35.50/12	7.80/20	9.6/14.5	64.5	18
Clark	29.18/1	45.28/1	13.52/2	17.06/2	6	1
Muskrat	12.48/20	32.74/15	7.31/21	8.62/18	74	21

In general, we found that several respondents had trouble determining what health education any one group of students had received. The final rankings will be discussed

in Chapter VI as they relate to student outcomes.

3. Community Mobilization

A recent trend in school-based prevention programs has been to recognize that negative and positive prevention messages occur not only in the school, but also in the larger social environment of the community. Hence, many authors have discussed how conditions in the overall community may facilitate or inhibit the outcomes of school-based prevention programs (See, for example, Thompson et al, 1991; Abrams, et al, 1986; McAlister, et al, 1982; Maccoby, 1988). Few studies, however, have examined the linkages between level of community mobilization and outcomes of school-based programs.

HFL, of course, is based on a social influences model of adolescent health behavior. Most programs based on this model have limited the consideration of social influences to the peer group. We felt it was important to expand our consideration of social influences to the community level. This section of the report examines the role of community mobilization on program outcomes.

We have collected data on the level of community mobilization on health risk prevention issues for each of the 21 HFL sites. The purpose of this data collection is to rank each of the sites according to level of community mobilization on prevention issues. This rank formed a covariate for the outcome measures. We hope this part of the study will contribute to an understanding of how the community environment affects the success of school-based prevention programs.

In addition, we hope to contribute to the development of methodology for the study of community mobilization on prevention issues. Despite the recent trend toward considering community-level social influences on adolescent health behavior, few methods exist for assessing community mobilization on prevention issues.

Not surprisingly, measuring community mobilization on prevention issues presents some problems. Community responses to perceived health problems are varied and complex. Typically, community responses will occur at many different levels and through many different channels. Further, the high degree of site specificity of key actors makes it difficult to use standard randomized sampling procedures.

Also, there have been problems with determining the level or unit of analysis (Eng & Blanchard, 1991; Unger & Nelson, 1991). Frequently, the unit of analysis has been the individual; the unit of measurement has been pre- to post-test changes in the individual's attitudes, knowledge or beliefs. Other projects have used other indicators of community mobilization on health issues: morbidity/mortality statistics, rates of health risk behaviors (eg. number of people smoking) or frequency of health messages in the mass media.

A basic problem with these measurements has been that of understanding how these indicators **articulate with** the underlying phenomenon we are trying to capture: community mobilization. Being quite distanced from actual community-level decisions or processes, it has been difficult to determine what these indicators mean in terms of local activities or program impact.

Hence, we have chosen to assess community mobilization using indicators which may be more closely articulated with the actual community-level, "grass-roots" attempts to prevent adolescent health risk behaviors. The unit of analysis for this study is that of **community prevention actions (CPA)**. Basically, a CPA is any collective, deliberate action taken by members of the community to prevent adolescent health risk behaviors.

We chose this action-oriented method of assessing community mobilization for two reasons. First, as mentioned above, we felt that an action-oriented unit of analysis captured more closely the actual community process of organizing for prevention. Second, we wished to develop a method of describing community mobilization that captured the sorts of activities prevention programs normally try to create in a community setting. This expands the utility of the method in terms of the questions that can be addressed as well as in terms of the application of the method.[1]

a. Methods

One of the basic tasks of this study was to develop a definition of a CPA which accurately reflected the underlying phenomenon of community mobilization and which provided clear rules for what would/would not be "counted" as a CPA given the wide variety of actions that could conceivably be construed as having preventive value.

The following definitional principles served to determine what would be counted as a CPA. These principles reflect our conception of community mobilization for prevention as the development of non-formal actions taken by community members themselves.

1) Involvement. For any action to be counted as a CPA, community members must have been involved in any/all of the following: a) sponsorship of the activity, b) planning, or c) participation.

2) Scope. For any action to be counted as a CPA, there must have been four community members involved in any/all of the above three aspects of the event. Also, the target audience could not exclude youth, though groups other than youth could be included in the action. (Not included, for example, were health/prevention actions directed solely toward the elderly or infants.)

3) Prevention. For any action to be counted as a CPA, it must have been preventive in its intent. Treatment or punishment systems carried out by professional

agencies or institutions were not counted. To be counted in the study, an action had to be directed toward a target audience that was not defined by an existing health problem.

4) Planned Actions. For any action to be counted as a CPA, it had to have an element of deliberate planning. Spontaneous decisions made by one person to sponsor a prevention activity, for example, were not considered a CPA.

5) Topical Focus. For any action to be counted as a CPA, it had to include at least one of the HFL target behaviors: alcohol, tobacco, marijuana, nutrition, or sexuality. Actions having a general health theme were also included. (Not included, for example, were actions aimed solely at sports or dental health.)

6) Non-profit/Non-professional Orientation. For any action to be counted as a CPA, it had to include community members acting in a non-professional capacity. Further, the action could not have profit-making as its intent. (Not included then, were private health clubs or seminars directed solely toward health care professionals.)[2]

7) Separation of School and Community. For any action to be counted as a CPA, it had to include, in either the sponsorship, planning, or participation, people other than school professionals or students. (Not included then, were actions organized by school professionals directed solely toward students.)

8) Geographic Boundaries. For any action to be counted as a CPA, it had to occur within the geographic boundaries of the school district having the HFL school program at the site.

We have carried out extensive research on community responses to prevention issues for our second HFL grant. From this research we developed a typology of seven categories of community prevention actions that are commonly taken by community members. The instrument consisted of a checklist with these seven different categories of community prevention actions as well as one "Other" category for actions that may have counted as a CPA but did not fit into the seven fixed categories. These seven types of community prevention actions were divided into two major categories: inactive and active. These are explained below.

Inactive Community Prevention Actions are those for which no direct or measurable community participation or attendance for the action exists. There were three types of inactive CPA's contained in the instrument:

1. Sponsorship of prevention action with donation of money (over $25.00).

2. Sponsorship of prevention action with donation of labor (more than 20 person hours) or materials (worth of at least $25.00).

3. Community-wide symbol campaign having a prevention theme (eg. badges, slogans, ribbons, etc.)

Active Community Prevention Actions are those for which a measure of community attendance or participation can be obtained. There were four types of Active CPA's contained in the instrument:

4. Providing a "safe" activity with a health theme (eg. tobacco- and alcohol-free dances, lock-ins, or fun runs with a health theme).

5. Providing an educational or awareness event (eg. seminars and workshops open to the community with a health theme, health fairs, poster contests, etc.).

6. Forming an on-going discussion or awareness group with a prevention theme within a group or agency (eg. Lion's Club forms a task force against drug abuse; church group forms a group with an alcohol use prevention theme).

7. Forming an on-going discussion or awareness group with a prevention theme that is non-agency specific or open to all members of the community (eg. community-wide task forces on AIDS prevention for youth, inter-church discussion groups having a prevention theme).

Data was collected by telephone interviews. Two trained interviewers collected the data. Each interview lasted approximately 20 minutes.

For inactive CPA's, data was collected on how many such actions existed at each site. For active CPA's, data was collected on the topic(s), the number of hours used to plan the event, the number of persons involved in the planning of the event, the number of people participating in or attending the event, and the number of hours the event took place.

Sampling consisted of a combination of purposive (Patton, 1980) and progressive (Grusky & Tierney, 1989) techniques.

The purposive sampling involved interviewing key actors from pre-specified groups or agencies within the community. Hence at every site, key actors (leaders or consistent members) from the following groups or agencies were interviewed about the prevention activities of their group or agency:

* The five largest adult service clubs in the school district;

* The two largest churches in the school district;

* The following youth clubs in the school district:

  largest 4-H, Boy Scout and Girl Scout group;

* The hospital serving the school district; and

* The PTA/O associated with the school having the HFL program.

These 12 key actors formed the core sample. The "snowballed" sample was formed using progressive sampling in the following manner: after each interview, core sample respondents were asked if they knew of any other prevention action occurring in the community. Key actors referred in this way by core sample respondents were then contacted and interviewed. If prevention actions they reported met the definitional criteria to be counted as a CPA (as given above), these actions were then included in the study.

The study consisted of total of 356 interviews for all 21 HFL sites. The interview instrument is provided in Appendix B.

b. Findings

Table V-18 below (p. 114) gives values for the inactive CPAs at each site. The value in Column A of Table 18 (# Inactive CPAs) is merely the total number of inactive CPAs for each site. The value in Column B of Table 18 (Inactive CPA Site Rank) is the rank of each site according to the total number of inactive CPAs. The site with a rank of "1" had the greatest number of inactive CPAs; the site with the rank of "21" had the least number of inactive CPAs.

Table V-19 below (p. 115) gives values for the active CPAs for each site. Column A of Table V-19 (Sum of Intensity Scores, Active CPAs) was calculated in the following way. For each Active CPA reported, we collected data on the "intensity" of the CPA. Each CPA was assigned an intensity score based on points for number of community members involved in planning the event, number of hours spend in planning, number of community members attending the event, and number of hours the actual event spanned. For example, a CPA involving a 1 hour planning time with 2 people for an event that lasted 2 hours and had 4 people attending would receive an intensity score of "4". A CPA involving 7 people planning 20 hours for an event that lasted 8 hours and had 300 people attending would receive an intensity score of "20". The values in Column A is the sum of the intensity scores for all CPAs at each site.

In Column B of Table V-19 (Rank of Intensity Score Sum), the values in Column A are ranked. As in Table V-18, the site with the highest score is given a rank of "1"; the site with the lowest score is given a rank of "21".

Table V-20 (p. 116) gives the final ranks for each site. Column A of Table V-20 (Inactive CPA Rank) is the rank of each site for Inactive CPAs. Column B of Table V-20 (Active CPA rank) is the rank of each site for Active CPAs. Column C of Table V-20 (Sum of Ranks) is the sum of the Active CPA and Inactive CPA ranks. In Column D (Final Rank), the values from Column C are ranked to give a final rank for each site.

Community mobilization was considered as a covariate in the outcome analysis to determine if increased levels of community prevention activity were associated with lower rates of health risk behaviors. This discussion is found in Chapter VI.

TABLE V-18:

INACTIVE CPAs BY SITE

Site	Column A # Inactive CPAs	Column B Site Rank: Inactive CPAs
Hepville	10	14.5
Goldstream	18	9.5
Gideon	16	12
Hillary	10	14.5
Artery	7	18.5
Crandle	32	1
Paradise	4	20.5
Molar	28	4
Milan	14	13
Salem	21	8
Peterson	27	5.5
Zurich	18	9.5
Burton	7	18.5
Clark	4	20.5
Pineville	27	5.5
Muskrat	17	11
Wrigley	29	2.5
Fred Rogers	29	2.5
Muddy Waters	9	16
Klinke	8	17
Pulptown	26	7

TABLE V-19:

ACTIVE CPAs BY SITE

Site	Column A Sum of Intensity Scores: Active CPAs	Column B Rank: Intensity Score Sum
Hepville	245	16
Goldstream	317	9
Gideon	182	21
Hillary	315	10
Artery	327	8
Crandle	678	3
Paradise	277	12
Molar	360	6
Milan	237	18
Salem	186	20
Peterson	631	4
Zurich	314	11
Burton	234	19
Clark	274	13
Pineville	720	1
Muskrat	336	7
Wrigley	628	5
Fred Rogers	714	2
Muddy Waters	242	17
Klinke	247	15
Pulptown	256	14

TABLE V-20:

FINAL RANKING OF COMMUNITY MOBILIZATION

Site	Column A Inactive CPA Rank	Column B Active CPA Rank	Column C Sum of Ranks	Column D Final Rank
Hepville	14.5	16	30.5	14
Goldstrem	9.5	9	18.5	8
Gideon	12	21	33	18.5
Hillary	14.5	10	24.5	11
Artery	18.5	8	26.5	12
Crandel	1	3	4	1
Paradise	20.5	12	32.5	17
Molar	4	6	10	6
Milan	13	18	31	15
Salem	8	20	28	13
Peterson	5.5	4	9.5	5
Zurich	9.5	11	20.5	9
Burton	18.5	19	37.5	21
Clark	20.5	13	33.5	20
Pineville	5.5	1	6.5	3
Muskrat	11	7	18	7
Wrigley	2.5	5	7.5	4
F. Rodgers	2.5	2	4.5	2
MuddyWaters	16	17	33	18.5
Klinke	17	15	32	16
Pulptown	7	14	21	10

G. CASE STUDIES

1. Goldstream Middle School, North Angle, WI.

The North Angle Joint School District serves a sprawling geographical area in one of the wealthiest counties in Wisconsin, 30-45 miles north of Milwaukee. The municipality of North Angle is the major population area, a pleasant, stable and economically viable city. Most residents either commute to professional jobs in Milwaukee or work in the area's retail or service industries. Two light manufacturing firms have their headquarters and main factories in North Angle. Several towns and villages in the school district circle North Angle and exhibit the contrast of viable diary farms and families struggling with rural poverty.

The district has two high schools, two middle schools and seven elementary schools. The student population of the middle schools just tops 1,400. Goldstream Middle School, which served as a treatment site for **HFL**, houses approximately 400 of those students in a modern, well-kept physical facility. The other middle school, Chipmunk Middle, served as a control site for our study and resides in an old, decrepit, over-crowded building that used to be a high school.

Twelve full-time administrative staff plus support staff comprise the Central District Office. Resource allocations indicate that the district places a high priority on strong leadership and keeping abreast of current research and innovative educational trends. The Director of Instruction was intimately involved in the recruitment process, teacher training and the implementation phase (four years total) of **HFL**. In addition to the Principal and Vice-Principal of Goldstream Middle School, this individual was always available as an advocate and back-up trouble-shooter for the project. The administration of this district was also sophisticated enough to recognize an innovative, **free** program and seized the opportunity to participate in a project that held great potential benefits for their students.

We recruited North Angle Joint School District with relative ease. The district had long since adopted the middle level concept of education and Goldstream Middle School operationalized some of its key components 15 years ago: students grouped in small communities of learning called Houses; Block scheduling with no bells; teaching teams; common planning times for teaching teams; an established Advisor-Advisee program; and a positive incentive system for student performance and behavior. In working throughout the state, we quickly understood that Goldstream was regarded as extremely "progressive" with some of the "best" middle level educators around. Since the design of **HFL** derives solidly from middle level philosophy and pedagogy, the Goldstream staff bought-in to the "idea" of the program very easily.

Scheduling proved to be a bit more difficult, but in the long run, the process was well worth the effort. Administrative staff insisted that many of the teachers who would be involved in the program implementation attend the scheduling meetings and have a voice in the final decision. Although this required a significant time investment on our part, we emerged with the **ideal** set-up: all academic teachers in the building would be trained and

would co-teach **HFL** during one of the "Blocks" of time in which 43 minute time constraints (class periods) did **not** exist. Not only did this arrangement allow us maximum flexibility and comfort, the teachers remained with their own "Houses" of students which enhanced the comfort and trust level. The Family and Consumer Education teacher also committed to reinforcing the **HFL** curriculum by attending the first teacher training and arranging her units to support and augment the topics being covered in **HFL**.

All of these benchmarks of sound middle level education taken together at Goldstream created the best "fit" between **HFL** and any school in the project. In addition, we enjoyed extraordinary administrative support from the Principal and Vice-Principal. Not only were all of our requests honored -- for curricular issues, peer leader training times, and the Health Advocacy Event -- but the assistance given was totally positive and genuine. The significance of this unique relationship between **HFL** and Goldstream Middle School cannot be over-stated; the absence of this kind of relationship at other sites exacted a toll on the project staff and the implementation of the in-school component.

Goldstream received the Age-Appropriate version of **HFL**; all three grades had January-February implementations. This time of year proved to be excellent for program delivery: few holidays or vacation days; few competing programs like Outdoor Education, athletic championships or Spring Music Festivals; and, Wisconsin winter doldrums were moderated by the up-beat, activity-oriented focus of **HFL**. Staff and students alike welcomed the change of pace.

We held Parent Orientation Sessions each of the three years, 2-5 weeks prior to implementation. The first year's session was very well attended; numbers decreased the following two years but we do not attribute that to lack of interest, but rather, to widespread parental support of the program. We encountered absolutely no controversy from 1988 - 1991 regarding the sexuality unit of the curriculum. Less than five students were removed from the sexuality lessons. We had an interesting scenario at Goldstream in which two families had planned to remove their children at the outset of the 6th grade program, but changed their minds as they experienced the unfolding of **HFL**. Their children participated in the entire program all three years. Our proxy for family involvement via the family component, the homework completion rate, was 46%.

We discovered in the Goldstream students an audience very receptive to the **HFL** approach and strategies. Not only were they attending school in a positive middle level environment, their affective needs had received a lot of attention during their primary years. They exhibited very few discipline problems and thrived on discussion-oriented and cooperative learning lessons. Student leadership as a concept was valued and rewarded at Goldstream; the next step to peer leadership as used in **HFL** was an easy one for the students and most teachers to make. The LD/ED students were mainstreamed into classes with their own special education teachers to assist them; this had been the case for a number of years. The only remnant of traditional practice we encountered was an ability tracking system hinging on mathematics and reading skills. An interesting outcome emerged from this situation. In the Gifted and Talented classes, we definitely noticed a demand from the students for more in-depth information and discussion. These classes often went way

over the time allotted for **HFL** in the day's schedule, and challenged our notion that knowledge and facts should receive only minimal attention in the curriculum.

Even though we enjoyed a strong core of support among the Goldstream teachers, this site does illustrate the enormous variance in the caliber of co-teachers we encountered during this project. On one end of the spectrum, we worked with several teachers who were totally in tune with the developmental and learning needs of young adolescents, and who had adopted many of the **HFL** strategies in their method of instruction long before we appeared on the scene. At the other end of the spectrum, we encountered one clearly-inappropriate teacher whose classroom was constantly riddled with unequal treatment along gender lines. This individual put up posters with inappropriate portrayals of females and engaged in behavior towards one of our project teachers that bordered on sexual harassment. Another veteran teacher clearly disliked middle schoolers, had a very low anger threshold, and ran his classroom with an inappropriate level of control, intimidation and rigidity. This individual had some history with the administration regarding excessive physical contact with students. Sadly, these two teachers carried quite a bit of power within the faculty and the teachers' union. From individuals such as these, we understood the true meaning of teacher personality being a critical variable in the success of the program.

The North Angle Joint School District represents one of our most labor-intensive sites vis-a-vis implementation of the community component. The community boasted a Chemical Abuse Resistance Education (CARE) group with a long history and a positive image; our community organizer chose to work with this group. In reality, when we began our intervention, we found the group in the midst of a membership and leadership crisis. There were only 5-6 stable, active members and the chairperson, a school guidance counselor, had just resigned due to new administrative responsibilities at one of the high schools. We began our work with an intensive outreach campaign and recruited 15-20 new members. Accomplishing this goal required over 150 phone calls, primarily in the evenings and on weekends, and holding several informational meetings. In the process, we learned that the group's crisis revolved around an issue of trust and leadership-sharing between parents and community members and school district personnel. School people monopolized positions of power and were perceived as taking all the credit for the group's accomplishments. Bitterness was rampant; our community organizer spent a great deal of time the first year on group dynamics and healing old wounds.

By the end of the sixth grade implementation year at Goldstream (1988-89), the CARE group was revitalized, meeting regularly with 12-18 members and a solid leadership of community people. As their **HFL** "event", the group chose a series of substance-free activity nights for 6-9th grade students, one to be held on the first Friday of every month with rotating sponsorship from area businesses and service clubs. In addition, they chose to include an **HFL** focus in the yearly CARE week observance, a North Angle tradition of educational activities and media messages stressing a chemical-free lifestyle. During CARE week, a popular radio station sponsored an **HFL** trivia contest, the local cable TV station and newspaper ran **HFL** public service announcements, and all the area churches included an **HFL** focus in their Sunday sermons.

During the 1989-90 school year, two key leaders moved out of the district and the new district Drug and Alcohol Coordinator joined the group. This individual proved to be extremely aggressive in re-establishing the school system's control of the group rather than with the community. He also began to forcefully push a drinking and driving agenda aimed at older teens on the group and select activities to pursue relevant to that theme. Trust and power issues resurfaced immediately; members began to withdraw. With only one "Friday Night Alive" event under their belt, a successful "Casino Night", the entire project was abandoned. The CARE group's involvement in CARE week demonstrated only a weak connection to **HFL**. None of the intense efforts of our community organizer were powerful enough to overcome the "school control" issue that had previously decimated the group. In June of 1990, we made a conscious decision to discontinue our work with the North Angle CARE group. Given the success the group had enjoyed in resurrecting itself and attracting new community members and leaders, as well as formulating an agenda of concrete **HFL**-related actions, the question of motivation on the part of school district personnel certainly becomes a central one.

In 1990-91, the CARE group dwindled to a tiny "in-crowd", meeting very infrequently to implement the wishes and ideas of the Drug and Alcohol Coordinator. **HFL**'s presence had vanished; the CARE week observance was dominated by school personnel. When the **HFL** students conducted their Health Advocacy Event, no assistance or support whatsoever was forthcoming from the group. Despite the enormous commitment of time and energy we put into North Angle, the resentment from school personnel of our focus on the development of broad, community-based support emerged as a stronger ingredient. Other components of our research indicate that this "school drift" can prove deadly to sustained involvement of community people in prevention initiatives.

Interestingly, the administration at Goldstream decided to continue the in-school components of **HFL**, absent the community component. To allow for co-teaching, we trained every person in the building. The plan was to deliver **HFL** to the entire school during the same month of the year, to maximize immersion and the impact on peer culture. Goldstream represents the most extensive adoption of the **HFL** program of any of our sites, and for the most part, they report success with significant integration across other curricular areas. However, the Industrial Arts and Orchestra teachers did file a grievance insisting they should not be "required" to co-teach **HFL**, but they were unsuccessful. Goldstream serves as an example of progressive, **school-based**, initiatives that continue to attempt to operate in isolation from a community partnership. With the **HFL** behaviors, so rooted in community norms and values, the effectiveness of this approach remains in question. With the changing nature of the available educational resource pool, both economic and human, this approach may prove to be very short-sighted.

2. Gideon Elementary and Gideon High School, Gideon, WI.

The Gideon School District serves a limited geographical area in the southwestern portion of Wisconsin, near the Iowa border. It is one of several small districts under pressure to consolidate with its neighbors, but unable to reach community consensus on this

issue. Once a viable dairy farming region with a prosperous business section, close to 70% of residents currently receive some form of public assistance. This is one of the areas in Wisconsin hardest hit by the family farm crisis -- traditional lifestyles and economic livelihoods devastated. No industry or service opportunities exist in Gideon to fill the gap.

The district has one elementary school which houses grades K-6 and one high school housing grades 7-12. An attempt is made to physically separate the seventh and eighth graders from older students, but this arrangement cannot be uniformly maintained due to the need to share certain facilities and teachers. The cohort of students participating in the Age-Appropriate version of **HFL** numbered approximately 90. As indicated above, when we delivered the sixth grade segment (1989), we worked in Gideon Elementary, then moved to Gideon High School for grades seven and eight (1990 and 1991).

Aside from the principals of the two schools, the district funds only one administrative position, that of Superintendent. When we began our recruitment process in 1988, three different individuals had occupied the position of Superintendent over a five year period. The new Superintendent was focused on making Gideon an educational "lighthouse" in the area in spite of minimal resources. Both he and the Elementary principal recognized in **HFL** a golden opportunity to provide their students with an "extra" they would never have been able to fund on their own. They expressed some initial concerns over the sexuality portion of the program, but were generally supportive.

The Elementary principal had worked hard to upgrade the educational quality and offerings in his building during his six-year tenure. He succeeded in establishing an exemplary reading program. The sixth grade did have an Advisor-Advisee program and a positive incentive system for student performance and behavior. Given the level of poverty, the staff and students maintained a fairly caring, up-beat atmosphere. The guidance counselor, at his own expense, stocked a closet with nutritious breakfast items available to the many hungry children arriving at school in the morning; many other teachers exhibited similar nurturing.

The environment of Gideon High School presented a totally different picture. The building was dirty and cold with few decorations or student displays. A significant amount of negative student interaction was visible, sometimes erupting into physical violence. The principal was a distant, uninvolved administrator who publicly characterized **HFL** as a nuisance. No support for the program was forthcoming; we had to beg for everything we needed. He organized seventh and eighth grade instruction along a strict high school model with no concept of appropriate middle level education whatsoever. To exacerbate the situation, in 1989-90, he became very ill and was replaced by the librarian, under severe pressure from her colleagues. With no administrative experience, this individual ran the school for 1 1/2 years. The entire building operated at a minimal level. In our final year, the sixth graders were moved into the high school due to severe over-crowding in the Elementary.

The Superintendent, Elementary principal and guidance counselor participated in the recruitment and scheduling meetings. Aside from the initial concern regarding sexuality

which was addressed by the district via a lengthy letter and consent form to parents, the process went quickly and smoothly. An April, 1989, implementation date was selected. These individuals demonstrated excellent judgement by inviting two sixth grade teachers, both K-6 generalists, to co-teach **HFL** who demonstrated the positive attributes necessary for successful delivery of the program. They wisely chose not to involve a strict, rigid teacher with vocal feelings on the inappropriate nature of teaching sexuality in public schools. The principal willingly re-arranged the sixth grade schedule to enable the two positive teachers to cover all the classes, clearly exhibiting a commitment to helping the program work. The guidance counselor displayed a keen interest in actively participating in **HFL**, but was unable to do so because of his other duties.

One of these Gideon Elementary teachers ranked among the best co-teachers over the entire four years of **HFL** implementation. A soft-spoken man in his early thirties with 10-11 years of teaching experience, he combined genuine affection for young adolescents and lots of humor with appropriate teaching methodologies. Long before his involvement with **HFL**, he had instituted class meetings, cooperative learning activities and integrated curriculum units. He was totally invested in meeting the urgent need for prevention of high risk behaviors at the middle level. This teacher exemplified the ideal use of self-disclosure and anonymous questions, facilitating one of the most open and caring classrooms we witnessed. Since he was paired with our most dynamic project teacher, **HFL** delivery to these particular sixth graders was highly effective.

The second Gideon Elementary teacher, a younger female, did a good job of co-teaching but had some serious problems with communicating her personal values to the students. Not quite as warm or respectful of young adolescents' developmental oddities, her classroom was adequate but not exemplary. These two teachers illustrate the power of personality and style over successful **HFL** delivery, especially given the fact that they both worked with the same project teacher.

Once at Gideon High School, the principal directed two male teachers to co-teach **HFL**, and at the last minute to boot. The seventh grade teacher was a second-year social studies specialist; in eighth grade, we worked with a veteran science teacher. This school did offer an eighth grade health class; from the outset, the health teacher displayed a negative and resentful attitude toward **HFL**, creating a huge fuss over the amount of work her involvement as district Health Coordinator would require. She also happened to be married to one of the most negative co-teachers in the entire project, a physical education teacher in a neighboring district. While her attitude was obvious and created a real barrier in implementation of the community component (discussed below), it was a blessing she was not in our classrooms.

The two high school teachers mirrored the two teachers at the Elementary. The seventh grade teacher was adequate, lack of experience with middle schoolers being the major impediment. The eighth grade teacher was again very soft-spoken, kind and affectionate with the kids. He dedicated himself to these students, serving as the Gifted and Talented Coordinator, the Mock Trial Coach and the Baseball Coach as well as being a classroom teacher.

We held Parent Orientation Sessions two of the three years; the principal declined the third year. The orientation to the sixth grade component occurred during the regularly scheduled Open House. Attendance was high; most families were supportive but there was a lively discussion regarding "values" and the **HFL** contraception lesson in sexuality education with approximately five families. Three of these removed their children from this unit, one from the entire program, for what they stated were religious reasons. Only 12-15 parents attended the second Orientation Session. The homework completion rate at Gideon was 56%, the project average.

The Gideon students, although not at all sophisticated, engaged in **HFL** with vigor and enthusiasm. They loved the program and appeared to receive some of the strongest benefits of any of our sites. Two examples come to mind: (1) these students responded to peer leadership with a solid performance of tasks and a strong sense of honor and responsibility; and (2) especially at the high school, they thrived on the emphasis placed on their feelings and ideas as young adolescents grappling with peer cultures. These kids truly appreciated the program. One can surmise that because of the rampant poverty and the bare-bones resources of the school district, Gideon students were starved for an environment which put their needs first. Interestingly enough, the Incentive system at this site ranked number three, not because of genuine family involvement but because the kids desperately wanted to earn the prizes and because the teachers and guidance counselor often served (happily) as the significant adults for the interviews.

Gideon's community component ranks close to last. Several context factors shed light on the failure of our efforts. First, the district had experienced inappropriate classroom behavior from a previous health teacher four years before the **HFL** project began recruitment. There had been enormous community outrage, the teacher was fired, and school personnel were still mending fences.

Second and closely related, district administrators maintained tight control on the individuals our community organizer was "allowed" to approach. It became evident early on that the administration would hold the smooth functioning of the school program and survey work hostage if we over-stepped our boundaries. They informed us that we were to work with the Health Advisory Committee and no one else. This committee consisted of teachers, the school nurse, and community members absolutely loyal to the district. All attempts to advocate for our **HFL** research protocol were in vain.

Third, the Chairperson of the Health Advisory Committee was the eighth grade health teacher mentioned above who harbored a negative attitude toward the program. After two positive meetings with the group, she informed us that they had decided not to serve as the **HFL** Community Task Force, citing pressing curricular issues as the reason. We identified this as a clear case of sabotage, but our hands were tied in terms of trying an alternative approach.

Fourth, the administration forbade us from working with the PTA -- they didn't like or trust the president of that organization. The PTA had enjoyed a revitalization in the last few years and it appeared that the district was leery of them gaining too much power and

respect. They were perceived as sometimes challenging the status quo.

Fifth, the great majority of Gideon's families devoted all of their attention to meeting basic survival needs. Educational, community or social activities, while they may have been valued, simply took a back seat. Any successful community organizing initiative must be able to adjust to the grassroots reality; being a project of limited scope, **HFL** could not alter its approach to what Gideon demanded.

Finally, the lead community organizer assigned to Gideon during the third and most important year for this component (1990-91), performed in an ineffective and unsatisfactory manner. The full ramifications of this poor job performance were not evident until the school year was over.

Given these constraints, the **HFL** project teachers and co-teachers did successfully orchestrate two small health advocacy events involving 5-7 parents each. During the seventh grade segment, parents and kids visited the local nursing home, conducted interviews about dating customs and boy-girl relationships in the "old days" with the elderly residents, and shared some nutritious snacks. An amusing time was had by all! At the end of the eighth grade segment, the entire class and several parents participated in an **HFL** walk-a-thon, stopping for nutritious snacks and health-related games along the way. Both events, as well as the school program, received extensive coverage from the local newspaper.

The Gideon School District chose not to institutionalize the **HFL** program. All the co-teachers resumed business-as-usual after the implementation with the exception of the sixth grade male teacher who moved to another district. The eighth grade health teacher regained control of all health-related instruction. The positive benefits to the students and the contributions to pedagogical practice stemming from the project could not compete with the other critical resource demands or the weighty investment in maintaining the status quo by the high school principal and certain members of his staff.

3. Burton Middle School, Burton, WI.

The Burton Community School District serves a limited geographical area in the southwest corner of Wisconsin, near the Iowa border. The major city, Burton, is the county seat and a viable business center. Due to its position as the area's service and governmental center, Burton has not suffered the same economic devastation as its neighbor, Gideon.

The district has one elementary, one middle and one high school. Burton Middle School dates from the early part of the century, and although it has some charm, the physical limitations of the building create many barriers to a positive educational environment. For example, a circular balcony with classrooms tops a gymnasium with no sound-proofing. Classes taught in this area suffered from the resounding noise of bouncing balls and screaming students; we delivered **HFL** in one of these classrooms two periods of the day. The building also suffers from over-crowding. The **HFL** cohort of students numbered 125; the entire population was close to 400, in a building designed for fewer than

half that. New building referenda had failed in Burton. Despite these limitations, the school atmosphere, while not effusively positive, was far from negative. Students were polite, well-behaved and friendly. Staff were, by and large, quiet and reserved, but polite and cooperative when approached.

In addition to the three building principals, the district funded two administrative positions. However, the middle school principal enjoyed a great deal of autonomy and our recruitment process involved only this individual and three teachers. Burton represents our easiest recruitment site. The principal was sold on most of the tenets of sound middle level education, and immediately seized the opportunity to offer a program he would otherwise not have been able to afford. Staff, parents and the community at large agreed on the pressing need for drug and alcohol education at the middle level. In fact, a series of public meetings had recently taken place on this very issue. We were in the right place at the right time! Some initial concern emerged about **HFL** usurping their traditional health class, but this was not a major stumbling block. Interestingly enough, Burton High School served as a pilot site for a conservative, abstinence-only sexuality education program. While this later surfaced as an issue for one of our co-teachers, it was never mentioned during recruitment. Recruitment of Burton Middle School required only two weeks, from start to finish.

Scheduling the Intensive version of the program demanded a bit more attention. Space and staff time were limited commodities. After much study, the only viable option was the Physical Education/Health slot, and this slot was not ideal. Students attended these classes on a variable schedule, in groups with differing compositions. **HFL** demands seeing all students every day in consistent groupings. We had to settle for a situation in which our project teacher co-taught four classes while a Burton teacher and school nurse co-taught the fifth class. The students in this fifth class are not included in our data base.

The Burton Middle School principal can be characterized as quietly supportive. After getting to know him, this seemed to be a matter of personal style and a general "hands-off" leadership approach. Several years prior to **HFL**, he had quietly instituted an Advisor-Advisee program in which every employee of the middle school participated, even the janitor. As long as our teacher initiated the requests, he facilitated the smooth functioning of the program. We secured the greatest amount of Peer Leader Training time at this site, with no begging required. When we experienced some problems with one of the co-teachers, the principal attempted to intervene in a helpful manner. He supported the Health Advocacy Event from behind the scenes, enjoyed the level of interaction with the students, and voiced enormous pride in their accomplishments.

We worked with three co-teachers in Burton, all with Physical Education/Health certification. In terms of classroom dynamics, two were mediocre, one was extremely negative. Of the first two, one was a second-year female teacher, shy and lacking confidence in her teaching abilities. She demonstrated a positive attitude toward the program, viewed it as a learning opportunity and improved significantly over the 12 week implementation. The program methodology and modeling by our project teacher provided an excellent context within which this individual could take some risks and experience growth. The second teacher staffed classes at both the high school and the middle school, as well as

coaching varsity sports. He continuously exhibited symptoms of this stressful situation throughout the program, arriving late to class, never having preparation time, and never really investing in the success of HFL. He also taught the above mentioned sexuality curriculum at the high school and held definite opinions that were directly contradictory to the HFL messages. This emerged as a significant barrier to his participation in the sexuality lessons, particularly those focused on contraception and sexually transmitted diseases. Fortunately, his approach was silence, not open warfare in front of the students.

The third teacher ranks close to the bottom of all the project co-teachers. We discovered that this individual demonstrated poor job performance long before we arrived at Burton. He, in fact, was actively attempting to leave the teaching profession. He disliked the students, treated them poorly, constantly displayed a negative attitude, and maintained a military-style atmosphere in his classroom. In terms of HFL, he expressed severe criticism of the program concept and design, never planned or prepared, was frequently absent, and never truly fulfilled the role of a co-teacher. Working with this individual placed enormous stress on our project teacher, with a definite negative impact on HFL delivery in that particular class. Fortunately, she was able to prevent this person from affecting her performance or her relationships in the other classes.

We held an extremely successful Parent Orientation Session in Burton. Not only was our session an integral part of the regularly scheduled Parent Open House, another speaker of interest was on the program as well. Over 125 families and community people attended the evening's events. As mentioned above, the Burton community welcomed HFL; in spite of the high school sexuality program, we experienced no controversy over the HFL sexuality unit. Only one family removed their child from the program. The homework completion rate was 64%.

Even though the Burton students had little prior background in the HFL topics or instructional strategies, they responded well to HFL, particularly to our warm, caring and dynamic teacher and the improved classroom environments. It appeared that her presence allowed these students to demonstrate the energy and enthusiasm so abundant in young adolescents and channel them in a positive direction. With a teacher bestowing genuine responsibility and maintaining a high level of expectations, the Peer Leaders performed very well and were exceptionally well-received by their classmates. It is important to mention that at the same time HFL started in Burton, the guidance counselor began a group whose agenda was to sponsor and support chemical-free activities for middle schoolers. This happy coincidence, using some of the same strategies as HFL employed, certainly bolstered the possibilities for success.

Moving to the community component, we were told when we first started our work in Burton that "we would never accomplish anything in this community." In reality, we realized enormous success with one of the most elaborate and popular Health Advocacy Events of the entire project. Our community organizer created a broad-based HFL Task Force early in October; one of the local service groups, the Burton Optimist Club, seized leadership immediately. The group also insisted on an active working relationship with the HFL students, demonstrating a solid understanding of and commitment to the HFL

strategies. Once approached, the students loved the idea of a cooperative event and from October through March, young adolescents and adults worked on the Burton Optimist Club/HFL Obstacle Course. In March, over 500 people negotiated an obstacle course based on a health-theme which spanned the entire high school gym, then visited HFL displays and booths and sampled nutritious foods in the cafeteria. The two candidates for mayor of Burton attended; two year olds came with young parents, high schoolers came, senior citizens came.

We can identify the factors that facilitated this success, and that separate Burton from most of our other sites, quite readily. First, a project teacher whose school suddenly withdrew from the project devoted 100% of her time from September to mid-January to implementing the Burton community component. This teacher held dual degrees in School Health and Community Health; she was experienced and exceptionally effective.

Second, the significance of the leadership and dedication of the Optimist Club members cannot be overstated. A key part of their mission as a service organization was to work with youth. Time and money were generously given. Because of their position and visibility in the community, they were able to secure cooperation and donations from many other service groups and businesses. Having solid, grassroots leadership early on totally eliminated the issue of "outsiders" trying to tell the people of Burton how to operate. This was Burton's Task Force and Event, not a detached part of a research project.

Third, selling the students on the idea of a cooperative Health Advocacy Event and having them "buy-in" early on helped tremendously. Our community organizer, the President of the Optimist Club and our project teacher engineered this feat by going into the classrooms. Task Force members graciously opened their homes and garages to students after school, in the evenings and on weekends to work on the event. Working together building the obstacle course and designing the booths and displays was a positive experience that gained more and more momentum as time went on.

Fourth, setting the date for the Event in March allowed adequate time for all tasks to be successfully completed. The time pressures experienced in other communities simply were not a factor, primarily because our organizer had so much lead time.

Finally, the shy female co-teacher "turned-on" to this whole process and served as a dedicated liaison between the adults and students from the time the HFL in-school components ended (mid-December) and the Event in March. The presence of this person was crucial; without her, the overall logistics and sustaining of student engagement would not have been possible. Unfortunately, she moved out of the district the following year.

With her departure, and the retirement of the principal followed by 18 months of the guidance counselor filling in, the institutionalization of HFL was in limbo. In August 1991, a new teacher started at Burton Middle School who, once she learned about HFL, began a campaign to revitalize the program. During the 1991-92 school year, she implemented the lessons that she could without financial or administrative support. In the fall of the current school year (1992-93), she successfully adopted the entire HFL curriculum and peer

component. The implementation of the family component awaits resource allocation decisions by the new principal. While the Optimist Club still has the obstacle course in storage, the community group in Burton is dormant.

4. Hester Prinn Junior High School, Salem, WI.

The Salem School District serves a large geographical area in one of the poorest counties in Wisconsin in the northeast portion of the state. The city of Salem has been spared economic devastation since it serves as the major retail and service center, as well as being the county seat. Beyond the city limits, however, significant rural poverty is evident. Because of its beautiful forests and pristine lakes, the area has long served as a major tourist center. The tax base draws from many non-Wisconsin property owners who travel to the area only in the summer; they subsidize the school system but are not clients. Many residents make their living in the tourism industry which has suffered a severe decline due to both the economic times and a bitter, highly-publicized battle over Native American Treaty Rights. Salem is less than 25 miles from two Indian reservations although these Native American children are served by different school districts.

The district has one high school, one junior high school and nine elementary schools. Even though it is called a junior high, sixth graders as well as seventh and eighth graders attend Hester Prinn, a relatively new, modern and well-maintained facility. In every other way, however, traditional junior high practices prevail with virtually no evidence of sound middle level education. This school received the Intensive version of **HFL** and their cohort of seventh grade students was the largest of all our sites, numbering approximately 250.

Ten full-time administrative staff plus support staff comprise the Central District Office. Each of the eleven buildings in the district has a principal; the high school also has two assistant principals. Resource allocations indicate an unusually high funding level for this type of rural district directed to pupil service personnel such as speech therapists and psychologists. This perhaps reflects the school district's attempt to respond to the harsh economic realities and cut-backs in governmental services hitting northern Wisconsin's families.

Recruitment involved four meetings and a final approval from the School Board. Our staff attended two meetings with the Principal, guidance counselor and eighth grade health teacher, and two with the Parent Advisory Committee, a group of parents and community people who make recommendations to the district regarding curriculum. Aside from one parent expressing some concerns about the sexuality unit, the process reflected a keen desire to participate in **HFL**. The Principal took the recommendation to the School Board and they approved it with little fanfare. The entire recruitment process required about eight weeks. Little did we expect what happened once the program got underway.

Two Hester Prinn teachers expressed an interest in co-teaching **HFL**, one was a social studies teacher and one a math teacher. The program was scheduled into the social studies slot; the math teacher traded places with a second social studies teacher who graciously

agreed to teach his math classes for 12 weeks. Soon after the program began in September, we understood the reason for the first social studies teacher's "enthusiasm." A powerful, veteran faculty member and vocal member of a fundamentalist church opposed to sexuality education, she quickly initiated a campaign to smear **HFL**. A small but well-funded group of people created a nightmare for our teachers and our project over the next several months. They took excerpts out of context from the sexuality lessons, created a lengthy document, and mailed it to all school districts participating in **HFL** in the state, a network of like-minded churches and the media. They wrote letters to the conservative governor whose office, in turn, demanded explanations from our project director. They purchased full page ads in local newspapers condemning the project and characterizing our staff as putting children at great risk. Needless to say, this campaign created a constant state of negativity and tension, and drained enormous energy and time from the implementation of the program. It also illustrates the power of a very vocal minority when no local, organized counter-balance exists.

The principal of Hester Prinn chose not to exert any leadership during this crisis. Occupying his position for only two years, he appeared to abdicate control to the largely-veteran faculty. A different leadership approach would have made an enormous difference, particularly vis-a-vis the social studies teacher. Support for the **HFL** implementation was absent; peer leader training was only allotted a 20 minute slot during the lunch period. This individual was anxious for **HFL** to be over and leave Salem so the controversy would end. The small group of people had succeeded in intimidating most of the school personnel.

In the classroom, this social studies teacher also managed to place enormous strain on program functioning. She maintained an extremely rigid classroom atmosphere, frequently digressed from the curriculum, used inappropriate self-disclosure, interjected personal values regarding sexuality, and chose to be absent on days when she had assumed significant program responsibilities. She was openly critical of our project teacher, both to the students and to other faculty members. The positive relationship that evolved between these repressed middle schoolers and our project teacher was a constant source of jealousy for her. This teacher sought to seize **HFL**, control its implementation and regulate its use in Salem. She ranks as the poorest co-teacher in the project.

The second co-teacher, the math teacher, presents a marked contrast and ranks as one of the most effective individuals we worked with. A soft-spoken, unassuming man, he demonstrated an excellent grasp of young adolescents' developmental needs. He used wit, humor and classroom dramatics masterfully. A caring, mutually-respectful relationship between this teacher and his students was evident. Always impeccably prepared, he shared the delivery of **HFL** with our project teacher on an equal basis. This individual illustrates that, when teaching a program like **HFL**, a vast knowledge-base about health topics takes a back seat to a dedication to fostering a positive learning environment. Unfortunately, this teacher chose not to serve as a vocal advocate for the program during the controversy.

We held the Parent Orientation Session during the regularly scheduled Open House. Attendance numbered between 60 and 70; once again, in spite of a supportive majority, the anti-**HFL** parents created a negative atmosphere that dominated. Seven families removed

their children from the program, most from just the sexuality lessons. An interesting phenomenon with this type of controversy seems to be a broad acceptance of drug and alcohol education in public school, but not of sexuality education. A sector of the public fails to understand the integral connection among these high risk behaviors. The homework completion rate at Hester Prinn was 66%.

Given the rigid, junior high atmosphere at Hester Prinn, the students needed some time to warm up to **HFL**. They were never particularly effective role players or in discussion formats, but they enjoyed the hands-on and game-oriented activities. Peer Leaders gave only fair performances, but this was partially due to minimal training time. After a period of trust-building, they responded fairly well to our attempt at an open and caring classroom environment. Their Health Advocacy Event bordered on disaster, both because they were not viewed as capable, responsible young people by the school culture and because our project teachers did not exercise appropriate guidance at this site. The raging community controversy definitely affected the students; the value of **HFL** and our project teachers was in constant question.

Oddly enough, Salem represents one of our most successful community component implementations. Our community organizer steered clear of any school-affiliated group, forming an independent Task Force consisting of six highly dedicated individuals. This site is also the only community in which we secured active participation from the medical profession. A local family practitioner look on the leadership of the group; another staff person from her clinic was not only an active member, but the clinic paid a portion of her salary while she worked on Task Force business and donated $500 to the event the group sponsored. A Catholic priest also served as a core member.

The group strategically decided to avoid using the **HFL** label, and unfortunately, there was no formal inter-relationship with the **HFL** students. However, given the circumstances, these sacrifices facilitated the successful acceptance of the group by the community at large. Beginning in October, the Task Force planned an elaborate event that took place in April. Entitled "101 Better Things To Do Than Drinking, Smoking, Using Drugs or Eating Junk Food," the event featured over 50 fun, healthy, hands-on booths, activities and skits. From baseball card collecting to horseback riding to maple sugaring, the goal was to show Salem residents the many positive avenues for using their time. Approximately 800 people attended the event; neighboring school districts bussed students to Salem for the day. Miss Oklahoma, a former resident of Salem, returned for the event and served as a powerful role model.

Another unique feature of this event was the "Degenerate Skit" put on by high school students. Role playing such characters as Spuds Mackenzie, Couch Potato and Virginia Slims, these teens demonstrated the devastating effects of smoking, drinking and eating junk food by becoming less and less healthy as the day went on. They put on weight, developed a hacking cough, got dizzy and nauseous, developed lung and heart problems. The local paramedics made periodic checks on these characters, and at the end of the day, an authentic ambulance came and hauled them away to the local hospital. The impact of this skit, particularly on the children, was enormous -- actions speak louder than words!

Because of its independent nature, intense dedication and our skilled community organizer, this community Task Force realized tremendous success under adverse conditions. They have repeated their efforts in a slightly different format once, and are now planning another "101 Better Things To Do" for 1993.

The school components of **HFL** have not fared as well. Intense debate still rages in Salem over the nature of sexuality education. The nine week eighth grade health class continues business as usual, employing a lesson here and a lesson there from the **HFL** curriculum. The Family and Consumer Education teacher has adopted some of the nutrition lessons. The problematic social studies teacher continues to sabotage innovative curriculum reform. Effective advocacy for a sound middle school prevention program by an organized group of Salem residents simply has not been forthcoming.

VI. OUTCOME EVALUATION RESULTS

Analyses presented in this section examine the overall behavioral impact of **HFL**, as well as its effect on hypothesized mediating variables. Two sets of analyses are considered in depth; other approaches to analysis are described in passing. First, we have examined, descriptively without statistical adjustment, outcomes on key **HFL** behaviors by condition over time. Graphic depiction of these results are included. Secondly, statistical analysis of these measures has been conducted; we have carried out the multiple regression equivalent of two-way analysis of covariance with time (pretest vs. wave four) and group (Age Appropriate, Intensive and Control) as factors and with the baseline school-level substance abuse context measure and the pretest level of the dependent variable as covariates. Analogous runs using logistic regression are also presented. Analyses have been conducted with both the individual student and the school as the unit of analysis.

We have also analyzed the effect of cohort exposure to health education, and the effect of community mobilization for prevention (both ranked by school) on **HFL** outcomes. The effect of quality of implementation of **HFL**, ranked within each **HFL** condition, is also examined.

A. SUBJECTS

Table VI-1 (p. 133) provides data on the demographic characteristics of the students participating in **HFL**. The 2,278 students (sample size varies due to missing data and deletion approach used) are ninth graders who were followed from grade six through grade nine. These students attended 21 middle schools in small cities and towns in Wisconsin. At the time of the ninth grade survey, 68 percent of the students were 14 years old and 29 percent were 15. The participating students were 51.5 percent female, were predominantly white (95.6%), and were living in small cities, towns or suburban areas (69%) or in non-farm country settings (27%). Seventy-two percent were living with two biological or adoptive parents, 12 percent with mother only and 10 percent with a mother and step-father. Nearly one half of all students had parents whose education had not gone beyond high school, and about one-third had completed a college degree or more education (as reported by the students). Eighty-six percent reported that their father worked full-time, and 58 percent that their mother worked full-time. Chi-square analysis indicated a significant difference between conditions in parental educational attainment and in mothers working full-time. Students in the Age Appropriate schools had parents who were less well educated than students in the other two conditions. Students in the control schools were less likely to have mothers who worked full-time than were students in the other two conditions.

TABLE VI-1:

CHARACTERISTICS OF SUBJECTS BY CONDITION

	AA	Intensive	Control	Total
N =	747	689	841	2277
Age:				
≤ 13	0%	1%	1%	1%
14	68	70	68	68
15	30	28	30	29
≥ 16	2	1	1	2
Sex:				
Male	49%	50%	46%	48%
Female	51	50	54	52
Race/Ethnicity				
White	96%	96%	96%	96%
Other	4	4	4	4
Community Type				
Town/City/Suburb	67%	68%	72%	69%
Rural Non-farm	28	28	25	27
Farm	5	4	3	4
Living Situation				
Two biological parents	68%	74%	74%	72%
Mother only	14	10	12	12
One bio/one step-parent	13	12	11	12
Other	5	4	3	4
Parent's Education*				
High school or less				
Fathers:	50%	44%	44%	46%
Mothers:	50	44	49	48
Some college/tech school				
Fathers:	21%	21%	24%	22%
Mothers:	24	22	21	22
College degree or more				
Fathers:	29%	35%	32%	32%
Mothers:	26	34	30	30
Father works full-time:	84%	87%	86%	86%
Mother works full-time:*	62%	60%	52%	58%

* Chi-square analysis indicates significant ($p < .05$) difference

B. GRAPHIC RESULTS

The graphic results, presented as Figures VI-1 through 7, provide a visual depiction of unadjusted means (or percentages) for each condition on key outcome measures. Unlike the regression analyses presented later, these graphics do not take into account differences on the contextual variable of prior cohort or school levels of substance use. Nor do they attempt to statistically adjust for baseline behaviors in examining differences in ninth grade.

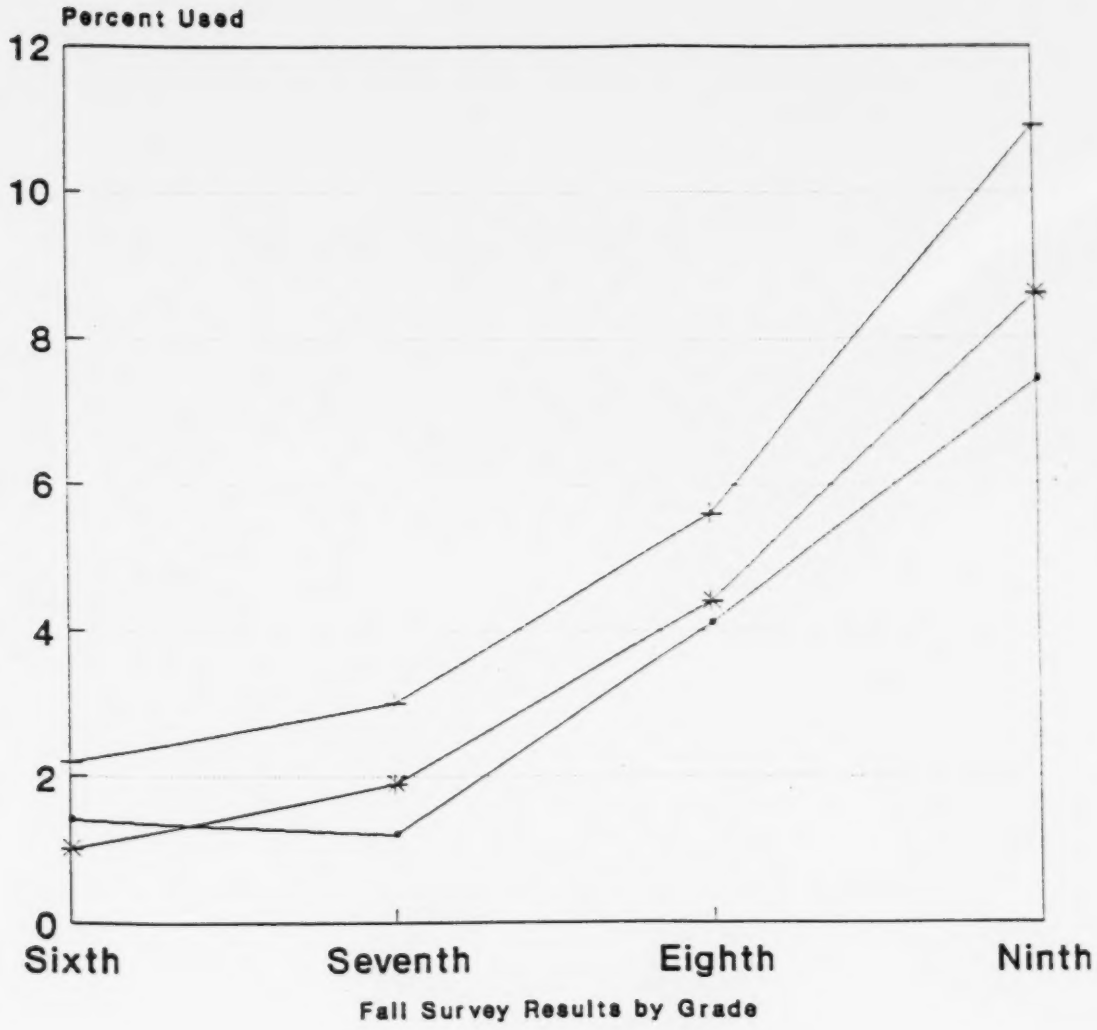
These graphs indicate no apparent effects on past month alcohol use, although the Intensive student's alcohol use appears to have accelerated immediately after the program (T3) and then attenuated (Figure VI-1, p. 134). Smokeless tobacco use is higher for Age Appropriate students than other groups at all measurement points (Figure VI-2, p. 135) Cigarette use in the past month at ninth grade is highest in the control group (28%) when compared to the Age Appropriate (25%) and Intensive (24%) conditions (Figure VI-3, p. 136). The students who received the Intensive version appear to increase their rate of smoking immediately after the intervention, and then slow the rate of increase compared to the other two groups by the ninth grade. Marijuana use in the past month yields a similar result, with 9% of the control students and 6% of the **HFL** students reporting marijuana use (Figure VI-4, p. 137). This small difference appears large on the graphic due to the low base rates and thus attenuated the range depicted in the figure. Figure VI-5, p. 138 provides data on an overall scale of substance use. Here we see a fairly parallel progression in use levels over time for all three conditions, with the exception of the immediate post-program increase for the Intensive subjects.

Reported past month sexual intercourse rates, while similar between groups at the ninth grade survey (18% overall), have declined slightly for both treatment conditions from eighth grade, while increasing from eighth to ninth grade in the control schools (Figure VI-6, p. 139). Finally, an analysis of scaled data on perceptions of peers' behavior indicates that **HFL** may have slowed the rate of increase in the perception that peers are engaging in negative health behaviors (Figure VI-7, p. 140). Again, there is a slight increase immediately after the program for the students in the Intensive condition, which moderates in the follow up year. These basic results provide an indication of the program's effects. Statistical examination provides the necessary adjustments to more precisely identify the extent to which any of these apparent effects are statistically reliable or significant.

FIGURE VI-2:

Smokeless Tobacco Use Over Time

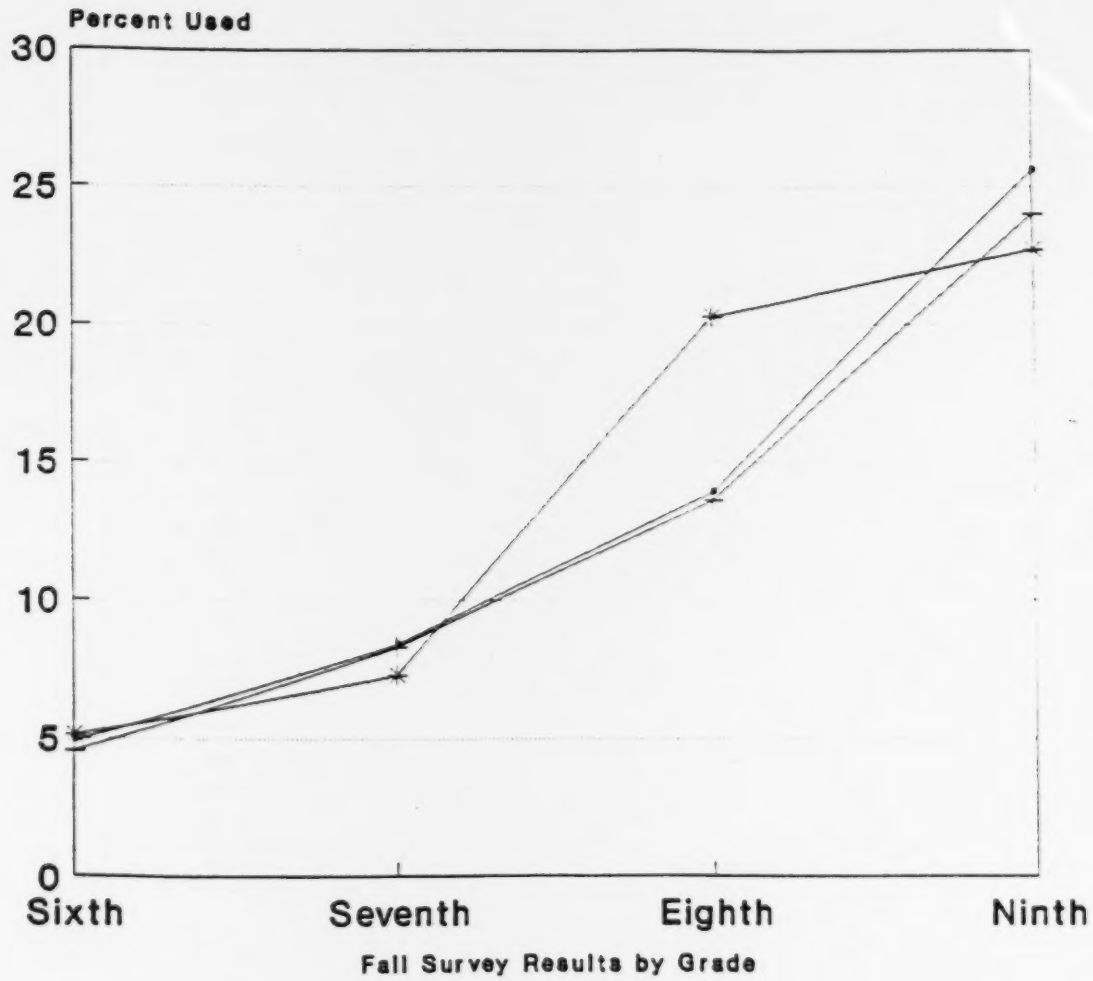
Percent Used--Past Month



Healthy for Life Project

FIGURE VI-3:

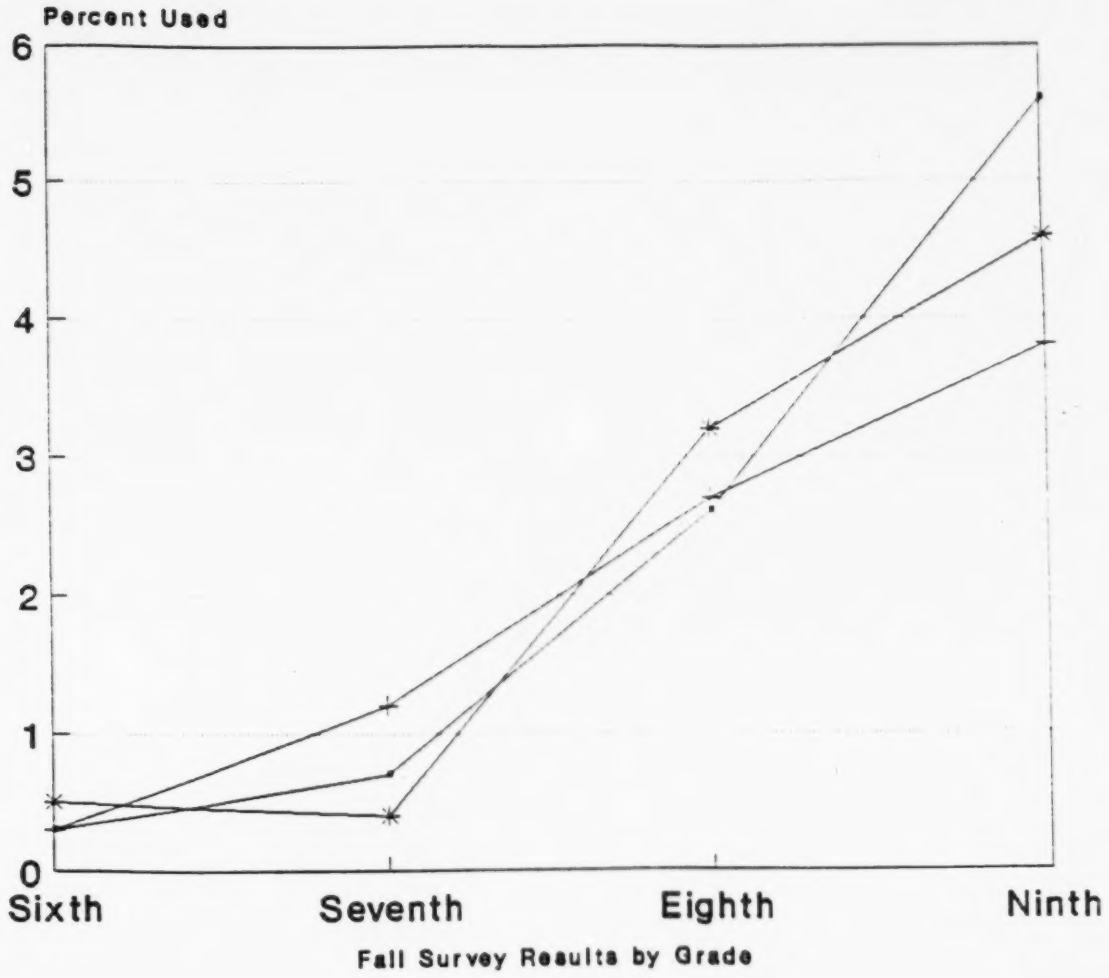
Cigarette Use Over Time
Percent Used--Past Month



Healthy for Life Project

FIGURE VI-4:

Marijuana Use Over Time
Percent Used--Past Month



Healthy for Life Project

FIGURE VI-5:

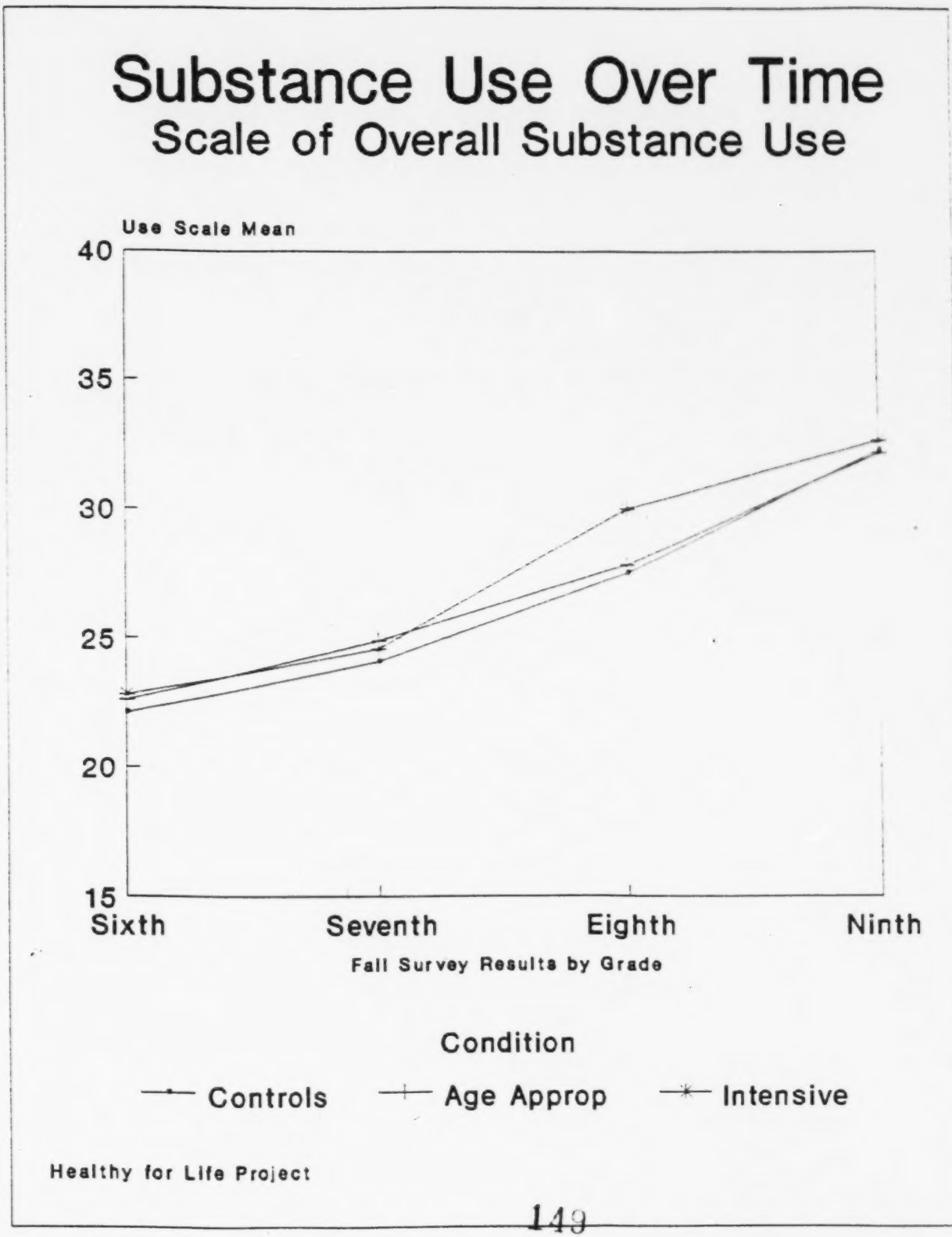
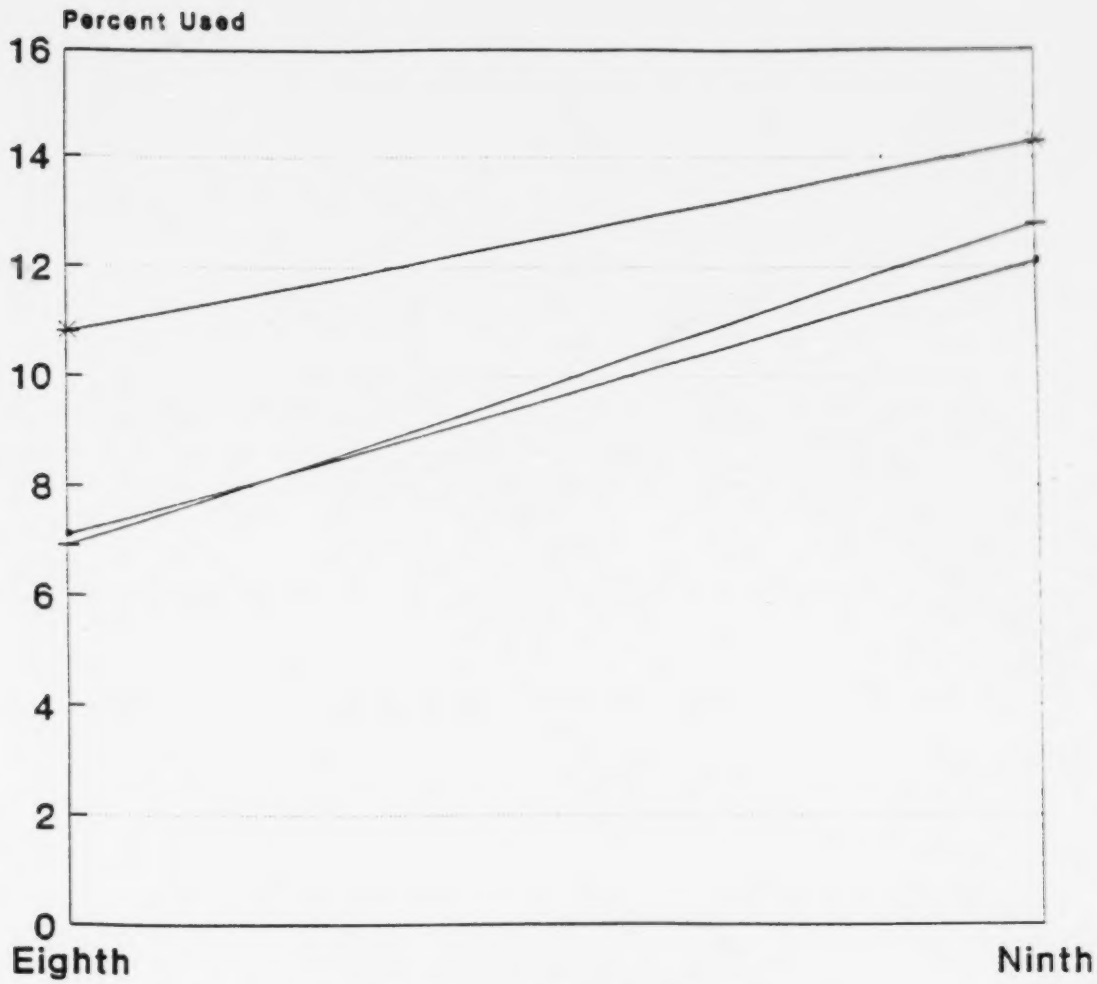

Substance Use Over Time
Scale of Overall Substance Use
Use Scale Mean
40
35
30
25
20
15
Sixth
Seventh
Eighth
Ninth
Fall Survey Results by Grade
Condition
Controls
Age Approp
Intensive
Healthy for Life Project

FIGURE VI-6:

Sexual Intercourse
Percent Yes--Past Month



Fall Survey Results by Grade

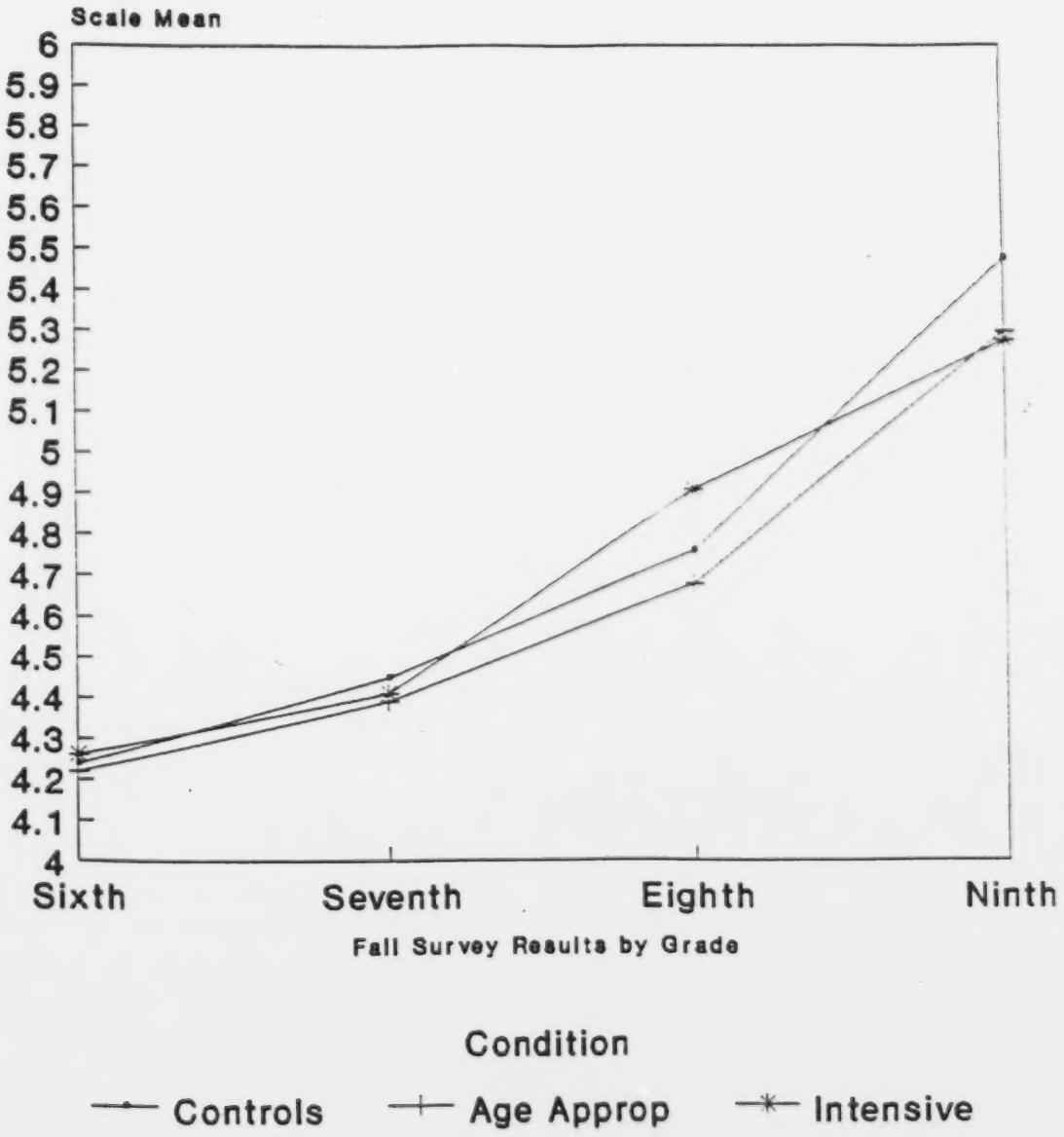
Condition

Controls Age Approp Intensive

Healthy for Life Project

FIGURE VI-7:

Perceptions of Peer Behavior
Scale of Negative Behaviors



Healthy for Life Project

TABLE VI-2:

RESULTS OF MULTIPLE REGRESSION ON SCALED VARIABLES FOR BEHAVIORAL OUTCOMES; STANDARDIZED REGRESSION (Beta) COEFFICIENTS AND T-TEST STATISTIC (N=21)

SCHOOL AS UNIT OF ANALYSIS

Independent Variables: / Dependent Measures at T4:	Baseline Principal Component (Substance Use Context)	T1 Value of Dependent Variable	Age Appro Condition	Intensive Condition	Adjusted R-Square
General Substance Use	.515 (2.76)*	.487 (2.60)*	.076 (0.37)	-.178 (0.91)	.447
Alcohol Use	.534 (2.66)*	.426 (2.15)*	.118 (0.54)	.003 (0.01)	.312
Cigarette Use	.486 (2.65)*	.508 (2.86)*	.042 (0.23)	.256 (1.53)	.571
Marijuana Use	.090 (0.51)	.788 (4.4)***	-.209 (1.10)	-.185 (0.92)	.466
Smokeless Tobacco Use	.014 (0.10)	.864 (5.7)***	-.112 (0.66)	-.210 (1.38)	.645
Positive Food Choices	-.413 (-1.92)	.407 (1.99)*	-.072 (0.34)	.217 (0.98)	.319
Negative Food Choices	.107 (0.44)	.514 (2.23)*	.138 (0.59)	-.024 (0.10)	.142
Meal Frequency	-.446 (2.11)*	.492 (2.44)*	-.011 (0.05)	.259 (1.16)	.259

Note: * $p < .05$
** $p < .01$
*** $p < .001$

C. STATISTICAL ANALYSIS-SCHOOL AS UNIT OF ANALYSIS

Methodological articles and statistical textbooks typically argue that, in situations such as ours where the random assignment is done using the school as the unit, the analysis should also use the school as the unit of analysis. In our case, this provides an N of only 21. However, since the measurement within each of the 21 units is based on a large number of observations, the standard error of measurement within each condition is relatively small. This is expected to partially compensate for the small number of units.

Results of applying our basic analytic model to the aggregated data file, however, failed to yield any statistically significant effects of the **HFL** program. Table VI-2 (p. 142) summarizes the results on our behavioral outcome scales using the basic regression model explicated above.

While several of the beta coefficients for the treatment dummy variables are fairly high, the standard errors are also large, yielding the non-significant t-statistics shown in parentheses on the table. The estimated coefficients for treatment effects are unreliable and thus non-significant. Given this, only the coefficients for the contextual substance abuse variable and for the baseline level of the dependent measure are significant. While not presented in tabular form, similar results were obtained for logistic regression analyses using the past month prevalence of target behaviors, rather than scales.

D. STATISTICAL ANALYSIS--STUDENT AS UNIT OF ANALYSIS

The analysis using the basic model described above was repeated using the student as the unit of analysis (Table VI-3, p. 143). Examining a series of substance use scales using multiple regression (analysis of covariance) confirms a statistically significant positive main effect of **HFL** on the scaled measure of cigarette use for students in the Intensive Condition. These data indicate that, adjusting for context and pretest (sixth grade) use levels, the Intensive students scored lower on this measure of cigarette use than did the Controls. In addition, there was also a significant effect in the desired direction on smokeless tobacco use among the Intensive students. (Since smokeless tobacco is used almost exclusively by males, we included only the male students in the analysis of smokeless tobacco use.) There was also a marginal effect ($p < .10$) in the desired direction on the overall substance use scale for the Intensive students.

Adding the T3 measure of substance use to the model in an alternative analysis which sought to capitalize on the repeated measures nature of the design, this marginal effect on the overall substance use measure became significant ($p=.0005$). This result is due to a higher than predicted T3 score mean which was then attenuated by T4 in the Intensive condition (see Figure VI-2, p. 141).

We hypothesize that exposure to the **HFL** curriculum, at least in the Intensive condition, may lead to a slight immediate increase in student substance use experimentation, but that this increase is short-lived and, in the long run, the program has a positive effect.

Examination of the figures provides some evidence that this effect may be repeated by the Age Appropriate students, although we will not be able to test this hypothesis until the tenth grade data are collected and analyzed.

TABLE VI-3:

RESULTS OF MULTIPLE REGRESSION ON SCALED VARIABLES FOR BEHAVIORAL OUTCOMES: STANDARDIZED REGRESSION (Beta) COEFFICIENTS AND T-TEST STATISTIC (N=2,279)

STUDENT AS UNIT OF ANALYSIS

Independent Variables: / Dependent Measures at T4:	Baseline Principal Component (Substance Use Context)	T1 Value of Dependent Variable	Age Appro Condition	Intensive Condition	Adjusted R-Square
General Substance Use	.111 (4.82)***	.418 (20.2)***	.004 (0.15)	-.040 (1.67)	.188
Alcohol Use	.102 (4.37)***	.378 (18.0)***	.022 (0.90)	.004 (0.51)	.152
Cigarette Use	.119 (5.13)***	.389 (18.7)***	.004 (0.16)	-.058 (2.41)*	.169
Marijuana Use	.030 (1.20)	.235 (10.6)***	-.032 (1.23)	-.018 (0.72)	.055
Smokeless Tobacco Use	.080 (2.42)*	.345 (11.2)***	.024 (0.67)	-.098 (3.0)**	.131
Positive Food Choices	-.080 (3.28)***	.348 (16.1)***	-.005 (0.21)	.024 (0.97)	.126
Negative Food Choices	.024 (1.03)	.413 (19.4)***	-.004 (0.16)	-.018 (0.74)	.171
Meal Frequency	-.055 (2.20)*	.179 (7.86)***	.022 (0.83)	.064 (2.40)*	.035

Note: * $p < .05$
** $p < .01$
*** $p < .001$

There were no significant results for the Age Appropriate students (vs. controls) on any of the scales of substance use considered in Table VI-3. Data from our three best scaled measures of nutrition outcome are also included on Table VI-3. There is a significant program effect for Intensive students on our measure of frequency of meals, in the desired direction of increased frequency. Experimentation with a variety of scaling approaches for the nutrition variables has failed to produce any additional significant results.

Logistic regression was also performed using the binary (i.e., proportional) outcome indicators of past month behaviors. The results of these analyses are summarized in Table VI-4. Here again we see that the baseline (sixth grade) level on these measures significantly influenced the behavior in tenth grade, as did the contextual substance use level. Three program effects emerge as significant. For the Intensive students, there is a significant reduction in past month cigarette use, significant at $p < .05$. For the Age Appropriate students, there are two apparently negative effects--the percent of students using alcohol and smokeless tobacco products in the past month is significantly higher than expected immediately following the **HFL** Age Appropriate treatment. However, these data reflect the first survey within less than one year after completing the **HFL** program. As with the Intensive condition, where the subsequent year showed an increase, it may be that we are seeing an immediate negative effect of the program, possibly to be followed by a positive change in the long-term.

TABLE VI-4:

LOGISTIC REGRESSION RESULTS FOR HFL BEHAVIORAL OUTCOMES ON BINARY VARIABLES: UNSTANDARDIZED REGRESSION (B) COEFFICIENTS
(Individual as Unit of Analysis, n=2279)

	Dependent (Outcome) Measure at T_4, use in past month of...				
	Alcohol Use	Cigarette Use	Smokeless Use[a]	Marij Use	Sex
Indep. Variables:					
Baseline P.C.	1.11***	1.63***	1.59**	.721	.867*
T_1 Value of Dep. Variable	.991***	1.59***	1.51***	2.2**	.192***
Age Appropriate Condition	-.304*	.076	- .631**	-.33	.183
Intensive Condition	.128	.338*	-.200	-.214	.124
Chi-square:	55.2***	80.3***	28.3***	4.50*	60.8***

Note: * $p < .05$
** $p < .01$
*** $p < .001$

a. Coefficients for smokeless tobacco use based on males only.

Tables VI-3 (p. 143) and VI-4 (p. 144) further confirm the power of earlier behavior in predicting subsequent behavior. Each of the coefficients for pretest (6th grade) value of the dependent measures is significant at the $p < .001$ level. This is both an indicator of the reliability of our measures over time, and of the consistency in student behavior from one year to the next.

Of most interest, however, is the influence of the contextual variable. The baseline principal component measure of substance abuse entered into the equation is derived from the baseline survey of prior cohorts in each participating school (with the exception of three Intensive schools added too late for baseline measurement). The significance of this measure in predicting our dependent variables indicates that pre-established patterns in the local school and community are a powerful influence on students' future alcohol and tobacco use.

A supplemental computer run was done to assess the impact of having added the three Intensive schools without the baseline data from the prior cohorts. Since we are using a proxy principal component for these students, estimated from their own sixth grade data rather than from the prior cohort of students, we were concerned that the results may be an artifact of this methodological peculiarity. To test for this, all basic analyses were repeated excluding these three schools. The results indicated a similar pattern of results, in which the contextual variable exerted a large and significant effect on the dependent variables. While the significance of several of the treatment outcome measures attenuated, the direction remained the same and the coefficients were of similar magnitude.

E. ALTERNATIVE ANALYSES

Several alternative analytical models were applied to the data. For the Intensive condition, where there were two before and two after measures, we were able to conduct a traditional two-way repeated measures ANCOVA in which the Intensives were compared to the controls (Age Appropriate condition excluded), with time and condition as the factors and the contextual substance use variable as the covariate. The results of this analysis were, however, non-significant for the Intensive subjects on all measures. This is because of the immediate (i.e., T3) negative effects on several variables, followed by the positive effect at the final survey. Since the repeated measures analysis essentially averages the T3 and T4 data points, the Intensive condition appears ineffective when assessed against the controls in this analytic approach.

Using a regression approach in which we ran the basic model but also included the T2 and T3 data points (to maximize the power of the repeated measures design) did not yield findings different from those reported above for the basic model. The only exception was that the coefficient for the Intensive condition on the overall substance use scale became significant ($p < .001$). This significant reduction, while promising, can be explained as an artifact of the increase on the scale at T3, which attenuates by T4. The T2 data have little impact in these models.

Several different indicators of alcohol use were used to examine whether our dichotomy of use or no use was masking an effect on heavier use. No significant results were obtained using a cutoff which allowed use once or twice in the past month of no more than one drink as the criterion measure rather than any alcohol consumption use as the cutoff.

Two additional approaches to increasing precision in analysis were attempted as modifications to the basic model. Since schools were assigned to conditions from blocks of similar schools, we conducted one analysis in which a dummy variable for the assigned block was added to the model. An alternative twist on this was to add a dummy variable for each school to the model in order to control for extraneous, school related factors other than substance use context, which may otherwise be captured by the contextual variable, which is measured at the school level. Neither of these fixes added any insights in the results, and did not alter the pattern of findings.

In general, these additional analyses did little other than to confirm the pattern of results from our basic analysis. We have experimented with a number of analytic approaches, and have obtained relatively consistent and stable results regardless of analytic approach.

F. MEDIATING VARIABLES

The multiple regression equivalent of ANCOVA was repeated on a list of hypothesized mediating variables upon which **HFL** was based (Table VI-5, p. 147). The analysis of data on two measures of perceptions of peer behavior produced significant ($p < .01$) effects of the Intensive condition in a positive direction; perceptions of peer behaviors in the Intensive **HFL** schools have indeed been affected, when compared to those in control schools. The peer behaviors include behavior of close friends and perceived behavior of "all the students in the same grade and school" (i.e., perceived grade-level norms). Students exposed to the **HFL** Intensive program believe that their close friends as well as larger peer group are less likely to be using drugs than do the control students.

A related measure of drug availability and possibly of peer pressure, a scale of reports of "drug offers," was also significantly reduced by the Intensive program. These are promising intermediate effects of the program predicted by the social influences model. Note also that these variables were significantly affected by the contextual covariate. It will be interesting to see whether this effect is replicated in the T5 data for the Age Appropriate students.

There was no reliable program effect on measures of parental supervision, self esteem, perceived social competence, resistance to peer pressure, or health self efficacy, although the social influences model would predict that the program would affect these variables as a path to affecting health behavior. However, these factors are less proximal to our behavioral outcomes than are the peer norm and availability issues which were affected. Measurement of these constructs is problematic. Further modeling of the

relationships between these variables and our critical outcomes will be conducted using path analytic techniques and structural equation modeling.

TABLE VI-5:

MULTIPLE REGRESSION RESULTS FOR OUTCOMES ON SCALED MEDIATING VARIABLES: STANDARDIZED REGRESSION (Beta) COEFFICIENTS AND T-TEST STATISTICS (Individual as Level of Analysis, n=2,279)

	Dependent Measure at T_4:				
	Friends Substance Use	Peer Substance Use	Self Esteem	Peer Press	Drug Offers
Indep. Variables:					
Baseline P.C. (Substance Use Context)	.119 (4.69)***	.174 (6.33)***	-.073 (2.77)**	-.014 (0.49)	.086 (3.55)**
T_1 Value of Dep. Variable	.233 (10.2)***	.236 (9.08)***	.450 (19.1)***	.311 (12.1)***	.226 (10.0)***
Age Appropriate Condition	-.014 (0.52)	.046 (1.59)	-.034 (1.26)	-.012 (0.40)	-.011 (0.42)
Intensive Condition	-.086 (3.23)**	-.089 (3.07)**	-.024 (0.89)	-.008 (0.27)	-.075 (3.11)**
Adj.R-square:	.068	.093	.205	.095	.060

Note: * $p < .05$
** $p < .01$
*** $p < .001$

G. SIZE OF EFFECTS

To assess the size of the effects noted based on the regression analysis, an alternative prediction analysis was conducted (Table VI-6, pp. 149-150). For this analysis, we estimated a score at T4 (fall of ninth grade) for each student, using an overall regression model that calculated a predicted score based on the T1 (sixth grade pretest) version of the dependent measure and the contextual covariate, without consideration of treatment group. The means on this predicted variable were then compared for each group of subjects. These means can be interpreted as the predicted ninth grade score without exposure to treatment/prevention. A second pass through the data calculated another adjusted mean which, in addition to pretest and context also took into account the effect of **HFL** in predicting a T4 score. A comparison of these predicted means within group provides an intuitive illustration of the magnitude of the average treatment effect in each group.

The results presented in Table VI-6 provide insight into the magnitude of the effects which may be attributable to the **HFL** treatment. We will consider only those entries where earlier analyses have reported possible treatment effects. For example, in examining the data on the overall substance use scale, we see that the predicted mean value at T4 without considering treatment for the Age Appropriate students is 31.7 and, for the Intensive **HFL** students, 33.4. Examining the second column of Table VI-6, we find that the predicted values for these groups, now including the treatment effect variable (in the form of the dummies for Age Appropriate and Intensive) yields predicted means of 32.1 and 32.6, respectively. The predicted means are now identical to the observed means (although the standard deviation is much larger for the observed than for the predicted columns). Most significantly, the difference between the two predicted means columns provides an intuitive estimate of the magnitude of the treatment effect. In this case, the Age Appropriate students were 0.4 points higher, on average, than would be predicted based on context and T1 data alone, while the Intensive students mean was 0.8 points lower than predicted exclusive of the treatment experience. Given a standard deviation of about 6.6, this reduction of 0.8 points on the scale is, in truth, a fairly small effect (effect size = 0.12) even though it is approaching significance statistically ($p=.10$).

Significant results were also obtained on the smoking scale for the Intensive students. Here we see a difference of 0.6 points attributable to the treatment effect. With a standard deviation of 3.2, this reflects an effect size of .19 standard deviation units, a "small" effect, according to Cohen (1977).

The latter part of Table VI-5 (p. 147) provides estimated proportions of students in each group engaging in negative health behaviors, based on the logistic regression models. Examining alcohol use in the past month, where there was a significant negative effect for the Age Appropriate subjects, we find that with treatment, the predicted proportion using alcohol in the past month in the fall of ninth grade is 0.03 higher than it would have been without the **HFL** program. If we examine the significant program effect on cigarette smoking for the Intensive students, we see that it is a reduction of 0.04 (4 percent). The negative treatment effect on Age Appropriate subjects for smokeless tobacco reflects an increase of .03 (3 percent) over what would be expected without the program. Again

following Cohen (1977), these differences are considered very small effect sizes.

TABLE VI-6:

PREDICTED T4 SCALE VALUES USING BASIC MODEL BY CONDITION TO ILLUSTRATE MAGNITUDE OF TREATMENT EFFECTS

	Expected Without Treatment Effect	Expected With Treatment Effect	Observed Mean (and S.D.)
Overall Substance Use	32.3 (6.6)	32.3 (6.7)	32.3 (15.3)
Control	31.9 (6.4)	32.3 (6.5)	32.2 (16.1)
Age Approp	31.7 (6.8)	32.1 (6.9)	32.1 (14.9)
Intensive	33.4 (6.6)	32.6 (6.7)	32.6 (14.8)
Alcohol Use Scale	12.1 (2.3)	12.1 (2.3)	12.1 (5.9)
Control	12.0 (2.2)	11.9 (2.2)	11.9 (6.0)
Age Approp	11.9 (2.4)	12.0 (2.4)	12.0 (5.9)
Intensive	12.6 (2.3)	12.5 (2.3)	12.5 (5.8)
Cigarette Use Scale	12.6 (3.1)	12.6 (3.2)	12.6 (7.7)
Control	12.5 (3.0)	12.7 (3.1)	12.7 (8.0)
Age Approp	12.2 (3.1)	12.4 (3.1)	12.4 (7.6)
Intensive	13.1 (3.2)	12.5 (3.3)	12.5 (7.4)
Friends' Drug Use	5.3 (0.5)	5.4 (0.5)	5.4 (1.8)
Control	5.4 (0.5)	5.5 (0.5)	5.5 (1.9)
Age Approp	5.2 (0.4)	5.3 (0.5)	5.3 (1.7)
Intensive	5.5 (0.5)	5.3 (0.5)	5.3 (1.7)
Frequency of Meals	8.9 (0.3)	8.9 (0.3)	8.9 (1.6)
Control	8.9 (0.3)	8.8 (0.3)	8.8 (1.7)
Age Approp	8.9 (0.3)	8.9 (0.3)	8.9 (1.5)
Intensive	8.9 (0.2)	9.0 (0.2)	9.0 (1.5)
Used Alcohol-Past Month	.31	.31	.31
Control	.31	.28	.29
Age Approp	.29	.32	.32
Intensive	.34	.34	.33
Smoked Cigarettes-Past Month	.24	.24	.24
Control	.24	.25	.25
Age Approp	.22	.23	.24
Intensive	.27	.23	.23

TABLE VI-6 cont.

Use of Smokeless-			
Past Month	.09	.09	.09
Control	.08	.07	.07
Age Approp	.08	.11	.11
Intensive	.09	.08	.08
Sexual Intercourse-			
Past Month	.13	.13	.13
Control	.13	.12	.12
Age Approp	.12	.13	.13
Intensive	.14	.14	.14

H. OTHER OUTCOMES: HARD DRUG USE, CONTRACEPTION, PARENTAL COMMUNICATION

Supplemental data were collected from students in the eighth and ninth grade surveys related to other drug use and to sexual activity and use of contraception. The base rates of other drug use were very low, and much of the reported use is probably frivolous responding. Overall, 4 percent claimed to have ever used cocaine, 3 percent crack, 5 percent LSD or other hallucinogens, and 9 percent amphetamines. There were no significant differences between conditions on the level of reported use. However, the control students were significantly ($p < .05$) less likely than the other students to report no users of illegal drugs in their schools--18 percent of the control students, 24 percent of Age Appropriates, and 26 percent of Intensives said there were few or no drug users in their school.

Of the sexually active students (21 percent overall), an equal proportion (59 percent) in each condition claimed to use a condom every time they had sex. Approximately the same percentage (61%) of sexually active youths claimed to use birth control pills "every time," again with no differences between conditions.

There were several items related to communication with parents about health issues in the supplemental item set. Table VI-7 (p. 151) provides summary data by condition on this item. Students were asked whether they had talked with their parents about the health issues in the past year, and if so, whether they had been able to freely express their opinions. The results indicate a significant ($p<.001$) effect of condition on each item. The greatest effect was seen for the Age Appropriate students, who had participated in the curriculum in the past year and thus would be expected to have communicated with their parents about these topics. However, on the items related to tobacco and alcohol, even the Intensive students reported higher levels of communication than did the controls. Thus there appears to be a lasting effect on child-parent communication, even after more than a full year since the program.

TABLE VI-7:

Parental Communication Regarding Health Issues by Condition

	Control	Age Appro	Intensive	Total
In past year, talked with Parents about ...				
Cigarettes	38%	55%	45%	46%
Alcohol	37%	61%	56%	46%
Dating	67%	76%	67%	70%
Appropriate Sexual Behavior	48%	61%	49%	48%

The supplemental items also asked students how honest they thought others in their school had been when answering the survey, and how honest they themselves had been. Interestingly, 78 percent said they had been "very honest," and an additional 16 percent indicated they had been honest "on most questions." However, when asked how honest their peers were, only 18 percent reported "very honest," with 49 percent only "honest on most questions." Thus there is an apparent under-estimation of the honesty of peers, or an over-reporting of personal honestly.

I. RANKING OF IMPLEMENTATION

Rankings of the implementation of **HFL** at each site within the Age Appropriate and Intensive conditions were constructed based on consideration of multiple dimensions of process evaluation data. The analysis incorporated these rankings as additional covariates into the basic model for **HFL** outcomes. Since rankings were for Age Appropriate and Intensive separately, the analysis looked at each condition to test the hypothesis that

> *Students in schools with higher implementation rankings will show significantly better outcomes on key measures of HFL's effectiveness.*

The basic model incorporated the principal component measure of substance use in the school district, our contextual variable, the baseline (T_1) value of the dependent measure, and the implementation ranking variable as predictors of outcome in ninth grade (T_4). Given the relatively weak outcomes we have been obtaining in all analyses, the test was run using the student, and not the school, as the unit of analysis. (If the school were used here, the N's would only be 7 and 6 for the Age Appropriate and Intensive conditions, respectively).

The ranking variable was not a significant predictor of outcomes in the Age Appropriate schools. In the Intensive schools, the only significant effect ($p < .05$) was on our scale measuring use of smokeless tobacco. This was a negative effect--as rank increased

(i.e., poorer implementation), scores on the smokeless scale improved (i.e., decreased).

There were also two coefficients for ranking which were marginally significant ($.05 < p < .10$) in the Intensive schools. As the ranking increased (i.e., poorer implementation), perceptions of peer substance use decreased, a negative trend. However, positive and negative food choices improved slightly with better ranked implementation.

The ranking variable correlates highly with the contextual substance use variable. There was a better implementation ranking in schools with lower levels of (pre-existing) substance use; $r = .52$ for the Intensive condition and .47 for the Age Appropriate condition.

J. COMMUNITY MOBILIZATION AND PRIOR HEALTH EDUCATION

All **HFL** communities were ranked in terms of the degree of mobilization regarding health issues related to the messages **HFL** was imparting. Each school was also ranked in terms of the amount of health education students in the cohort had experienced prior to and concurrently with **HFL**. (Details on how these rankings were formed is provided in Chapter V.) For analysis purposes, these rankings were added to the basic regression models and considered as continuous variables, both in models which included the treatment effect and in models including only the baseline measure of the dependent variable, the contextual use factor, and the rankings. Since the rankings correlated at rho= -.545 leading to multi-collinearity problems, the rankings were introduced separately into the models.

Results indicate only a few significant effects. Increased community mobilization was associated with lower scores on the scales measuring use of chewing tobacco ($p < .001$) and sexual activity ($p = .007$). Logistic regression models predicting use of smokeless tobacco and sexual activity indicated that more community mobilization was associated with lower rates of these health risk behaviors. Community mobilization was also significantly associated with more positive food choices ($p < .001$). The existence of community level support for positive health messages appears to have an independent effect on youth behaviors. Community mobilization also correlated at -.433 with the contextual substance use measure, indicating that the relationship may be long standing.

Health education exposure was related only to reduction in use of marijuana at the traditional .05 level. However, it marginally ($p = .10$) affected the smoking scale in the unexpected direction of more exposure being associated with higher smoking rates; the opposite trend was true for alcohol use. These effects are marginal and may be relatively inconsequential, but may also point to a saturation effect for tobacco education. Further analysis, examining interaction effects with **HFL**, will be conducted to further examine these relationships.

K. SUMMARY

The results are fairly consistent across a variety of analytic techniques in showing small but significantly positive effects for the Intensive program on measures of smoking and smokeless tobacco use, meal frequency, perceptions of peer use and offers of substances. There is also a marginal effect, in some analyses significant, on our overall scale of substance use. We also see a negative effect of the program in the survey immediately following full implementation of the Intensive program, and hypothesize that the lack of positive effects on the ninth grade (T4) wave of data for the Age Appropriate students may be due to this same phenomena. Both approaches have increased levels of communication with parents regarding health issues. Finally, and perhaps most importantly, the analyses demonstrate the strong effect of the community context on future adolescent behavior.

VII. CONCLUSIONS AND DISCUSSION

A. ANSWERS TO THE PRIMARY RESEARCH QUESTIONS

There were two primary research questions addressed by **HFL.** These questions served as the basis for the design of the research and of the program itself. Beyond these primary questions are a number of issues of theoretical and practical importance in explaining the results obtained in addressing the primary questions.

1. **Efficacy:** *Does the **Healthy for Life** program lead to significantly improved health behavior among young adolescents when compared to the traditional health education approaches used in the control schools?*

The **Healthy for Life** program was a partial success in modifying the health behaviors of the adolescents receiving the Intensive version of the program. It was successful in reducing cigarette use, smokeless tobacco use and reducing scores on an index of overall substance use. Students receiving the Intensive **Healthy for Life** program also increased the number of meals eaten per week. No significant change in the areas of marijuana use, alcohol use, sexual intercourse or food choices was obtained. However, the trend on all indicators is in a positive direction for the Intensive students. The significant positive effects were small in magnitude; the largest effect was for cigarettes, with a reduction in prevalence of past month smoking of about 4 percent for the students participating in the Intensive version of the program.

2. **Relative Effectiveness:** *Does the **Healthy for Life** program produce significantly more favorable outcomes when delivered over a three-year time frame (grades 6 through 8) using "Age-Appropriate" segments than it does when intensively delivered in one semester in seventh grade?*

The Intensive version of **Healthy for Life** was markedly more effective than the Age Appropriate version, at least by time four (fall of ninth grade). All of the positive behavioral outcome results obtained were for the Intensive version. The Age Appropriate version only had two significant behavioral results and these were in a negative direction.

We hypothesize that the negative results for the Age Appropriate version will disappear at time five (the fall of tenth grade). (This data collection is being supported by a grant from the Robert Wood Johnson Foundation and has not yet been analyzed.) With the Intensive version of the program, we saw a slight increase in most of the target behaviors in the wave of data collected immediately after the program was implemented. This increase slowed in the subsequent year, at which time the significant positive results became evident, compared to the students from the control schools. Our earlier research on a program which served as a pilot for HFL also found more positive results 20 months after the intervention than in a data collection wave immediately after the program was completed (Moberg and Piper, 1990).

It will be interesting to see if the positive but nonsignificant differences between the Intensive and control students at ninth grade in rates of marijuana use, sexual intercourse and alcohol use become significant at time five (tenth grade). Will the behaviors already significantly affected at ninth grade have increased effect sizes than are present at this time? The non-significance of sexual intercourse and marijuana use may be influenced by the low base rates of involvement in these behaviors at the beginning of 9th grade relative to the other behaviors.

B. IMPORTANCE OF SOCIAL CONTEXT

The strength of our baseline (contextual) substance use measure and time one (T1) as predictors of future use are remarkable. The baseline sample did not include the individuals in the treatment cohort. It is based on a sample of adolescents one to three years older, surveyed in 6th, 7th and 8th grades: the year the **HFL** cohort was in fifth grade. The significance of the prior cohorts' substance use measure in predicting our dependent variables (in ninth grade) indicates that pre-established patterns in the local school and community are a powerful influence on student's future substance use.

We have several indications that the **Healthy for Life** program is altering the social climate that occurred in the treatment schools and communities. The students in the schools receiving the Intensive version of the program perceived lower levels of substance use among their peers than did the students in the control schools by ninth grade. This was true for both "best friends" and "all classmates in the same grade." This also has extended to the actual offers of substances in the Intensive schools. Other research shows that lowering the expectations for adolescent substance use is the strongest mediator for lowering future substance use (MacKinnon, 1991).

Families play a major role in the social context of young adolescents and both the Age Appropriate and Intensive versions indicate a significant increase in child-parent communication.

If our theory is correct that all five of the targeted behaviors are, at least in part, determined by social contexts, meanings and expectations, we should see more positive results in the future because of the changes in the perceived social climate.

C. LIMITATIONS OF THE EVALUATION

1. The control condition is made up of slightly fewer at-risk students than either of the treatment conditions. Control students are slightly more likely to live in 2 parent homes (78% vs. 72%) and are more likely to have mothers who do not work outside of the home. This minor difference would not alter the significance of our findings. In fact, it indicates that the findings may be a conservative estimate of the magnitude of the results, since the expected outcomes for the control students would be slightly better than those for the Intensive students without the program.

2. The parents of the students receiving the Age Appropriate version of **Healthy for Life** are less well educated than those in the other two conditions. There is some indication that the parents of students receiving the Intensive version, who are better educated, were more involved in their son or daughter's participation in **HFL** than were parents of the students in the Age Appropriate condition. Parents of students in the Intensive version reported completing more of the Family Activities than those of adolescents in the Age Appropriate version. Our records on prizes awarded verify this. The parents in the Intensive version also were more likely to attend **HFL** task force meetings. More of the parents in the Age Appropriate version reported going to Orientation Sessions on **HFL** at their son or daughter's school. However, there were many more of these sessions at the Age Appropriate schools since these occurred annually over a three year span. There was no difference in the percentage of parents who read the mailed material or their opinions of the family activities.

There is the possibility that this difference in educational backgrounds made a difference in parental involvement in **Healthy for Life** and this, in turn, affected our results, making the Age Appropriate version less successful. However, it is premature to concede that the Age Appropriate version is definitely less successful than the Intensive version until the additional wave of data from time five (tenth grade--fall of 1992) has been analyzed.

3. Another possible limitation is related to issues of measurement. In particular, we had difficulty in reliably measuring nutrition behaviors, given the limited space on our survey and amount of time available. These problems may have resulted in our nutrition outcomes being less positive that in our previous study (Moberg and Piper, 1990). The process data indicates that the nutrition section of the program had a major, positive impact on adolescents and their families.

The remaining measures were quite valid and reliable, as evidenced by test-retest correlations over time and consistency of response patterns both within waves and over time. While students often mentioned that we shouldn't believe what others said on the survey, the data indicate a high degree of self-reported honesty, along with a great deal of skepticism regarding the honesty of peers on the survey. Measurement per se is unlikely to be a problem, although distorted responding could potentially bias the results if it is disproportionately experienced in one condition but not in another.

4. The time window for the evaluation may be inadequate to see anticipated long-term results. Adolescence is a dynamic period in which experimentation with new behaviors and adult roles is expected. Experimentation cannot be equated with use or abuse. It is possible that even following students through tenth grade, or through high school, would not be sufficient to determine the ultimate impact of programs such as **HFL**, which may affect stabilized adult behavior. However, the effort and expense of long-term follow-up of a large sample, and the likelihood that results would dissipate over a longer time period (rather than increase), makes such a follow-up impractical.

5. There is a possibility for Type II errors in this study, that is, concluding that the treatments were not effective when in fact they were. The methods used for the

outcome evaluation, especially, were designed for use with tightly controlled social psychology studies. However, our fieldtest of **Healthy for Life** was different from the ideal in two ways. First, many of our measures were somewhat removed from the behaviors being measured. Self report of past behavior and mediating variables are quite different from direct measurement.

Second, a number of factors varied within each condition - both those that we controlled and variations within the environment. We have discussed above the natural variations that occur in any community structure which impacts on community organizing efforts. In addition, educational settings contain numerous variables which cannot be held constant by outside researchers conducting an efficacy test. Two examples from our study illustrate this point: a) teacher behaviors, values and attitudes powerfully interact with program delivery and messages, and b) school discipline systems vary enormously in their treatment of our targeted behaviors, from severe punishment to benign neglect. It is possible that tracking variables like these and using them as covariates would provide a richer explanation of our outcome data, but once again, great effort and expense would be required.

D. POSSIBLE CAUSES FOR PARTIAL SUCCESS

There are a number of possible reasons that the behavioral outcomes indicate only partial or limited success:

1. We must consider the possibility that formal programs similar to **HFL** and STAR cannot be effective in changing the health behavior of adolescents. We reject this possibility. The STAR program has demonstrated reduced marijuana and alcohol use (Pentz et al., 1989a). The **Healthy for Life** program also has obtained several encouraging results in a short period. However, no school-based health education program with a rigorous design has reported large effect sizes. When there are positive effects, they tend to be quite small (Tobler, 1986), hold for limited subsamples (Schaps, 1984 & 1986), or dissipate after several years (Flay et al., 1989).

2. Another explanation is that preventing the use of multiple substances, improving nutritional behavior and preventing premature sexual intercourse with one program will not work. Our society deals with these issues in a substantively different manner than tobacco use and eating behaviors. Adolescents may have a differential susceptibility to the various messages which implies that one program cannot be effective for all five target behaviors. For example, the message for marijuana and tobacco is that they are always bad for your health. Low cholesterol, low fat and high fiber diets receive mainstream attention. However, alcohol use is appropriate and even expected among young adults, and is constantly modelled in our culture. Sexuality needs another, much more sophisticated, message because even though sexuality is a part of a healthy human being's existence, sex is used for marketing and profit.

While this explanation is possible on a theoretical level, nothing in our process data

or outcome evaluation lends itself to this interpretation. There is no reason to assume that adolescents are incapable of understanding the subtle differences each of these behaviors plays in their social lives. Merely putting each of these topics into discrete programs would not improve the situation. As educators are telling us, disjointed programming is detrimental to the educational process. At least in one program, the messages are not contradictory, as they might be if each behavior were dealt with separately. In addition, epidemiological data indicate that these behaviors tend to cluster among particular adolescents (Jessor and Jessor, 1977). Therefore, addressing them all in one program appears to be a reasonable approach to preventing these behaviors, as well as a rational and institutionally feasible solution to the multiple demands put on schools for categorical programs.

3. The limited success experienced also could be due to inadequate implementation beyond the school component. We would focus efforts more on the community and overall climate issues, and less on the school curriculum. We could improve the peer component with better training and activities outside of school. Opportunities for health advocacy efforts need to be increased. On the community side, we did not have adequate staff or time necessary to accomplish the scheduled programming to influence each community. In addition, there were few policy or media efforts in the majority of communities: important components of other prevention programs. Evidence is that these community organizing efforts must have longer implementations to have an impact.

Our desire to have as much comparability among communities as possible was actually a drawback. Communities are far more dissimilar than are schools. Some communities needed so much help that we could not bring them up to the basic starting point, let alone have successful health promotion events.

We accept this criticism in a limited way. By and large, the program was delivered as outlined in the grant application. However, that design needed to be modified as mentioned above and a few specific implementation steps needed to be changed in the program as it was operationalized.

4. The program did not have enough time to influence the schools and adolescent subcultures as they exist in a school and community. Even though there is evidence that we influenced the students' expectations of their classmates and friends, one year is inadequate to significantly alter the local adolescent subcultures of substance use.

There are strong indications that this is a valid reason for our partial success. One year of program implementation is not sufficient time to alter the social climate of adolescents as it relates to their health behaviors. Indications are that **HFL** was having the desired effect because the expectations for use were significantly lower among students in our Intensive schools. However, to see a larger change would take a longer period of time, not necessarily of curriculum delivery, but of other protective programming and work at the community level.

5. Using one generic version of the Family Component may have hindered our

ability to reach the entire spectrum of parents and other significant adults. Reading levels differ, parenting and discipline styles differ, and most importantly, parental behaviors vis-a-vis our targeted topics differ. Health promotion research would benefit from a close examination of recent educational research conducted on strategies for achieving effective parental involvement at the middle school level.

6. Saliency of our target behaviors was site-specific. In many Wisconsin middle schools, marijuana use is a non-issue, while the use of amphetamines and tranquilizers is popular. The low use rates in our population make it difficult to achieve significant outcomes. Averages for age of onset of sexual intercourse also vary.

E. SUGGESTED CHANGES IN THE HFL PROGRAM

The extensive process evaluation of the **Healthy for Life** program has given us a deep understanding of the program that was presented to the adolescents in the 13 treatment sites. Based upon these data, we have four major suggestions for modifications in the program that would improve it, in a practical sense and its ability to influence the health behaviors of young teenagers.

First, we would redirect the emphasis from the school to the community and family. The program fidelity of the in-school portion of the program was excellent. However, the community-based interventions were much more variable. More resources need to be spent on this community aspect of the program. More work could be done with the health advocacy events where the students are involved with the community in promoting health. In addition, media needed to be a larger part of our efforts. Since we were in small towns and cities in Wisconsin, there was limited media available which is influential with adolescents. However, creation of positive media campaigns by the students themselves may be a powerful exercise. A longer period of time with the **HFL** task forces would have allowed us to not only sponsor events with an impact on the teens but also work on changing norms, attitudes and policies within the communities. In small-town Wisconsin this is important.

Second, we would work more with our Peer Leaders. They needed to be better and more thoroughly trained. Many of the activities they were involved in need to be modified to more closely fit their skills. For example, the evidence is that conducting classroom discussions is too difficult for them. It also is possible that Peer Leader activities should be undertaken outside of the school setting.

The election of Peer Leaders as conceptualized demands some attention as well. Since 26% of our population served as Peer Leaders over the course of program delivery, we question whether all of those students could have been "true" social leaders. More turnover among Peer Leaders from one segment to the next occurred than we anticipated. Re-designing the election procedures may be necessary to replace this "democratic" tendency among young adolescents with ensuring that the social leaders occupy the Peer Leader roles.

Third, changes in the school-based portion of the program are needed. We would move the Age Appropriate program to 5th, 6th and 7th grades for two reasons: a) age of onset, especially for tobacco use, is now younger than the average age of sixth graders in many locations, and b) the eighth graders were less enthusiastic about the program. This may be due to the developmental nature of eighth graders being markedly distinct from their younger counterparts, as well as because the program was probably too long. In addition we would trim the in-school portion of the program and make it fit more logically into a standard school format.

Lastly, and perhaps most importantly, a longer period of time spent in a community and school is crucial to allow the community organizations time to develop and mature and to allow the program to influence the adolescent subcultures.

F. RELEVANCE TO THE FIELD

1. Our results are similar in many ways to those of the STAR project. STAR was able to reduce the prevalence of cigarette use (as we were) as well as marijuana use (Pentz et al., 1989). We used the student as the unit of analysis in order to generate enough power to say anything of value, due to the small effects. The STAR research also found that their program changed the adolescent's perceptions of friends use (MacKinnon et al., 1991). Their effect sizes tend to be small as well.

Other researchers have had similar difficulties in affecting alcohol use (Dryfoos, 1990; Moskowitz, 1989; Schaps, 1984 & 1986). As Mauss's evaluation of the Here's Looking At You II program concluded, the emphasis needs to be on peer, family and community factors, given the relative strength of these influences on adolescent behavior when compared to the influence of the school (Mauss et al., 1988).

Intermediate results, such as knowledge change, resistance of peer pressure, changed attitudes, have also been considered in many prevention studies. If we had not emphasized a change in actual behavior as our benchmark for success to the exclusion of knowledge acquisition or attitude change, **HFL** may have yielded more positive results.

In general, the **Healthy for Life** project supports the idea that a large scale effort with includes schools, families and communities can have an influence on the health behaviors of adolescents. In particular, our data on the contextual influence on adolescent substance use behavior, regardless of program exposure, supports this contention.

2. We have been struck by the importance of the social setting as a predictor of use. On a more practical level we have seen an interesting influence of the school climate on the functioning and acceptance of the program by the students. These factors have reinforced our understanding about the social nature of the targeted behaviors.

3. The inclusion of more than just substances, in this case including nutrition and

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sexuality, appears to be valid, at least on a practical level. While we did not effect intercourse rates and only had an influence on the number of meals the teens ate, the process data indicates that the inclusion of other behaviors was logical and well accepted. The only questions that were raised have to do with the appropriateness of the timing for presenting material on each of these issues. It also may be the case that more research must be done in the areas of sexuality and nutrition. This would allow praticioners to tailor those messages in the most effective way.

G. FUTURE RESEARCH AND PROGRAM DEVELOPMENT ISSUES

1. The additional wave of followup data now being processed will provide a more definitive evaluation of the potential of the **HFL** model. The collection of these data is funded by a grant from the Robert Wood Johnson Foundation to Dr. Moberg. The data from 10th grade (time 5) will provide many answers. Will the positive but nonsignificant trends we have seen in marijuana and alcohol use and intercourse rates become significant for those in the Intensive version? Will the outcome data for the students who received the Age Appropriate version mirror our outcome data for those in the Intensive version now that they are more removed from the treatment? Will the effect sizes of any of the behavioral differences become larger as the behaviors become more prevalent among our maturing target population? Will the positive results attained in the ninth grade wave dissipate by tenth grade for the Intensive students?

2. The **HFL** team would welcome a chance to refine the program and alter the balance to stress the community component and spend a longer time working in each site. It is possible that the presence of an outside community organizer and the availability of resources for start-up activities would yield even more results over a longer period of time. In addition, we would like to examine the appropriateness of a modified **HFL** to minority students. Our population was 95.6% white.

3. The qualitative data from our current research efforts indicate that the learning and social climate within the middle schools in which we ran our project is a crucial variable in the success of the program. Therefore, we feel that an investigation into the influence of school environment on the success of a health promotion program like **Healthy for Life** would be an important contribution to the field of health promotion as well as middle school restructuring. As we investigate the restructuring movement in middle schools in the upper Midwest, we are struck by the number of parallels between them and HFL. For example: (a) shared decision-making is crucial to a positive environment for implementation. A decision imposed by an administrator to participate in our study can adversely affect the classroom environment. (b) Having the students arranged in "houses" with interdisciplinary teaching teams not only makes scheduling more effective, it also makes the teachers more amenable to the non-traditional teaching methods used in HFL. (c) When in place, a positive experience with a the school-community partnership greatly enhances our success.

The first issue that begs investigation is the interaction between restructured middle

schools with their adolescent-friendly school environment and enhancement of protective factors and the risk factors for negative health behaviors. It is possible that the enrollment of a student in a truly restructured middle school **alone** may reduce the risk factors for poor nutrition, substance abuse and precocious sexual activity, and therefore, would reduce those behaviors.

The second issue is the possible success of a student-directed health promotion program. Our initial discussions with seventh graders in a classroom which uses student-direction for curriculum development have convinced us that a student-directed health promotion program - even one that covers that same broad categories as HFL - would look very different than the one we have developed based on the most current knowledge on adolescent development and health promotion research. This is where the best ideas from the professionals in health promotion field runs headlong into the middle school restructuring movement. The notion of a generic health promotion program may be a theoretical abstraction with severe practical limitations on its applicability.

4. Future research and program development must look at the social nature of the targeted behaviors. Therefore, more must be learned about the social meanings of these behaviors, the motivations for the adolescents' actions, and the nature of the social situations in which they occur. The research should go beyond the psychological, individualistic approach and include investigations of social interactions of adolescent peer cultures, with their highly evolved, complex systems of values and norms, rewards and punishments.

VIII. REFERENCES

Abrams D, Elder R, Carleton T, Lasater T, Artz L. "Social Learning Principles for Organizational Health Promotion: An Integrated Approach." In Health and Industry: A Behavioral Medicine Perspective, edited by M. Cataldo and T. Coates, Wiley Interscience Publications, New York, 1986.

Akers RL, Krohn MD, Lanza-Kaduce L, Radosevich M. "Social Learning and Deviant Behavior: A Specific Test of a General Theory." American Sociological Review 44:636-655, 1979.

Babor FT, Stephens RS, Marlatt GA. "Verbal Report Methods in Clinical Research On Alcoholism: Response Bias and Its Minimization." Journal of Studies on Alcohol 48(5):410-424, 1987.

Bailey SL, Hubbard RL. "Developmental Variation in the Context of Marijuana Initiation Among Adolescents." Journal of Health and Social Behavior 31:58-71, March 1990.

Bandura A. Social Learning Theory. Englewood Cliffs, New Jersey: Prentice-Hall, 1977b.

Bandura A. "Self-Efficacy Mechanism in Human Agency." American Psychologist 37:122-147, 1982.

Battjes RJ, Bell CS. "Future Directions in Drug Abuse Prevention Research." Prevention Research: Deterring Drug Abuse Among Children and Adolescents, Rockville, Maryland: National Institute on Drug Abuse, 1985.

Beauchamp DE. Beyond Alcoholism: Alcohol and Public Health Policy, Philadelphia: Temple University Press, 1980.

Becker H. Outsiders: Studies in the Sociology of Deviance, New York: Free Press, 1963.

Bickman L. "Randomized field experiments in education: Implementation lessons." In Randomization and field experimentation: New directions for program evaluation, no. 28, edited by R.F. Boruch and W. Wothke, 39-53. San Francisco: Jossey-Bass, 1985.

Boruch RF, Wothke, W. "Seven kinds of randomization plans for designing field experiments." In Randomization and field experimentation: New directions for program evaluation, no. 28, edited by R.F. Boruch and W. Wothke, 95-113. San Francisco: Jossey-Bass, 1985.

Botvin GJ. "Substance abuse prevention research: Recent developments and future directions." Journal of School Health 56(9):369-374, 1986.

Botvin GJ, Baker E, Renick NC, Filazzola AD, Botvin EM. "A Cognitive-Behavioral Approach to Substance Abuse Prevention." Addictive Behaviors 9:137-147, 1984.

Botvin GJ, Wills TA. "Personal and Social Skills Training: Cognitive-Behavioral Approaches to Substance Abuse Prevention." Prevention Research: Deterring Drug Abuse Among Children and Adolescents, (National Institute on Drug Abuse Research Monograph Series 63) U.S. DHHS Publication No. (ADM) 85-1334, 1985.

Braverman M, Campbell D. "Facilitating the Development of Health Promotion Programs: Recommendations for Researchers and Funders." In Evaluating Health Promotion Programs. New Directions for Program Evaluation. #43 edited by M. Braverman. San Francisco, CA: Jossey-Bass, 1989.

Brownson R, Jackson-Thompson J, Wilkerson JD, Owens N, Fisher E. "Demographic and Socioeconomic Differences in Beliefs About the Health Effects of Smoking." American Journal of Public Health. 82(1), 1992.

Bruvold WH, Rundall TG. "A Meta-Analysis and Theoretical Review of School-Based Tobacco and Alcohol Intervention Programs." Psychology and Health 2:53-78, 1988.

Bry BH. "Empirical Foundations of Family-Based Approaches to Adolescent Substance Abuse." In Preventing Adolescent Drug Abuse, NIDA Research Monograph #47. Rockville, MD: National Institute on Drug Abuse, 154-171, 1983.

Campbell DT, Stanley, JC. Experimental and quasi-experimental designs for research. Chicago: Rand McNally, 1963.

Chewning B, VanKoningsveld R, Hawkins R, Gustafson D, Bosworth K, Lohr S. "Sexual Risk-Taking as Part of Larger Adolescent Risk-Taking Behavior." Paper presented at the annual meeting of the American Public Health Association, New Orleans, October 1987.

Chewning B, et al. "Adolescent Sexual Risk-Taking: Antecedents and Sequelae." Report to the Office of Population Affairs, June 1988.

Cohen S. Statistical Power Analysis for the Behavioral Sciences. Orlando: Academic Press, 1977.

Connell DB, Turner RR, Mason EF. "Summary of the findings of the school health education evaluation: Health promotion effectiveness, implementation, and costs." Journal of School Health 55(8):316-321, 1985.

Cook TD, Campbell DT. Quasi-experimentation: design and analysis issues for field settings. Chicago: Rand McNally, 1979.

Dennis ML. "Assessing the validity of randomized field experiments: An example from drug abuse treatment research." Evaluation Review 14(4):347-373, 1990.

Dryfoos J. Adolescents At Risk. New York: Oxford University Press, 1990.

Dryfoos J. "Preventing High-Risk Behavior." American Journal of Public Health 8(2), 1991.

Durell J, Bukoski W. "Preventing Substance Abuse: State of the Art." Public Health Reports 99(1):23-31, 1984.

Ellickson PL, Bell RM. "Drug Prevention in Junior High: A Multi-Site Longitudinal Test." Science 247(16):1299-1305, March 1990.

Elliot DS, Huizinga D, Ageton SS. Explaining Delinquency and Drug Use, Beverly Hills, California: Sage, 1985.

Eng E, Blanchard L. "Action-Oriented Community Diagnosis: A Health Education Tool." International Quarterly of Community Health Education 11(2):93-110, 1991.

Evans R, Rozelle R, Maxwell S, Raines B, Dill C, Guthrie T, Henderson A, Hill P. "Social Modeling Films to Deter Smoking in Adolescents: Results of a Three-Year Field Investigation." Journal of Applied Psychology 66:399-414, 1981.

Flay BR, Koepke D, Thomson SJ, Santi S, Best A, Brown KS. "Six-Year Follow-up of the First Waterloo School Smoking Prevention Trial." American Journal of Public Health 79(10):1371-1376, 1989.

Flay BR. "Psychosocial approaches to smoking prevention: A review of findings." Health Psychology 4(5):449-488, 1985.

Friedman LM, Furberg CD, DeMets DL. Fundamentals of Clinical Trials (2nd edition), Littleton, Mass: PSG Publishing Company, 1985.

Glaser BG, Strauss AL. The Discovery of Grounded Theory: Strategies for Qualitative Research. Chicago, Ill: Aldine, 1967.

Glynn TJ. "Essential Elements of School-Based Smoking Prevention Programs." Journal of School Health, 59(5):181-188, 1989.

Goodman RM, Smith DW, Dawson L, Steckler, A. "Recruiting School Districts Into a Dissemination Study." Health Education Research, 6(3):373-385, 1991.

Grusky O, Tierney K. "Evaluating the Effectiveness of County Wide Mental Health Care Systems." Community Mental Health Journal. 25(1), 1989.

Guba EG, Lincoln YS. Effective Evaluation. San Francisco, California: Jossey-Bass,1981.

Hagenaars, JA. Categorical Longitudinal Data: Log-Linear Panel, Trend, and Cohort Analysis. Newbury Park, California: Sage, 1990.

Hansen WB, Johnson CA, Flay BR, Graham JW, Sobel J. "Affective and Social Influences Approaches to the Prevention of Multiple Substance Abuse Among Seventh Grade Students: Results from Project SMART." Preventive Medicine 17(2):135-154, 1988.

Hansen WB. "The Science and Art of Organizational Recruitment." Health Education Research, 6(3):387-390, 1991.

Hopkins RH, Mauss AI, Kearney KA, Weisheit RA. "Comprehensive Evaluation of a Model Alcohol Education Curriculum." Journal of Studies on Alcohol, 49(1):38-50, 1988.

Hurd PD, Johnson CA, Pechacek T, Bast LP, Jacobs DR, Luepkeer RV. "Prevention of Cigarette Smoking in Seventh Grade Students." Journal of Behavioral Medicine 3(1): 15-28, 1980.

Jackson C, Altman D, Howard-Pinney B, Farquhar J. "Evaluating Community-Level Health Promotion and Disease Prevention Interventions." In Evaluating Health Promotion Programs. New Directions for Program Evaluation #43 edited by M. Braverman. San Francisco, CA: Jossey-Bass, 1989.

Jessor R. "Critical Issues in Research on Adolescent Health Promotion." In Promoting Adolescent Health, T Coates, A Petersen and C Perry (eds.), New York: Academic Press, 1982.

Jessor R, Costa F, Jessor L, Donovan JE. "Time of First Intercourse: A Prospective Study." Journal of Personality and Social Psychology 44(3):608-626, 1983.

Jessor R, Jessor SL. Problem Behavior and Psychosocial Development, New York:Academic Press, 1977.

Johnson CA, Pentz MA, Weber MD, Dwyer JH, Baer N, MacKinnon DP, Hansen WB "Relative Effectiveness of Comprehensive Community Programming for Drug Abuse Prevention with High-Risk and Low-Risk Adolescents." Journal of Consulting and Clinical Psychology 58(4):447-456, 1990.

Kandel DB, Yamaguchi K. "Developmental Patterns of the Use of Legal, Illegal and Medically Prescribed Psychotropic Drugs From Adolescence to Young Adulthood." Etiology of Drug Abuse: Implications for Prevention, Washington, D.C.: U.S.

Government Printing Office, DHHS# (ADM) 85-1335:193-235, 1985.

Kim S, McLeod JH, Shantzis C. "An outcome evaluation of refusal skills program as a drug abuse prevention strategy." Journal of Drug Education 19(4):363-371, 1989.

Klitzner MD. "An Assessment of the Research on School-Based Prevention Programs." Prepared for the U.S. Department of Education's Report to Congress on the Nature and Effectiveness of Federal, State and Local Drug Prevention/Education Programs. Vienna, Virginia: Center for Advanced Health Studies, 1988.

Klitzner MD, Fisher D, Moskowitz J, Steward K, Gilbert S. "Report to the Robert Wood Johnson Foundation on Strategies to Prevent the Onset and Use of Addictive and Abusable Substances Among Children and Early Adolescents." Unpublished, 1991.

Koepke D, Flay BR. "Levels of Analysis." Evaluating Health Promotion Programs, edited by Marc T. Braverman. San Francisco: Jossey-Bass, 1989.

Krohn, MD, Skinner WF, Massey JC, Akers RL. "Social Learning Theory and Adolescent Cigarette Smoking: A Longitudinal Study." Social Problems 32(5):455-471, 1985.

Lau RR, Quadrel MJ, Hartmen KA. "Development and Change of Young Adults' Preventive Health Beliefs and Behavior: Influence from Parents and Peers." The Journal of Health and Social Behavior. 31(3):240-259, September 1990.

Lettieri DJ, Sayers M, Pearson HW (Eds). Theories on Drug Abuse: Selected Contemporary Perspectives, Rockville, Maryland: National Institute on Drug Abuse, 1980.

Maccoby N, "The Community as a Focus for Health Promotion." In The Social Psychology of Health edited by S. Spacapan and S. Oskamp, Newberry Park, CA: Sage Publications, 1988.

MacKinnon D, Johnson CA, Penty MA, Dwyer JH, Hansen WB, Flay BR, Wang EY. "Mediating Mechanisms in a School-Based Drug Prevention Program: First Year Effects of the Midwestern Prevention Project." Health Psychology 10(3):164-172

Marascuilo LA, Serlin, RC. Statistical methods for the social and behavioral sciences. New York: W.H. Freeman and Company, 1988.

Mauss AL, Hopkins RH, Weisheit RH, Kearney KA. "The Problematic Prospects for Prevention in the Classroom: Should Alcohol Education be Expected to Reduce Drinking by Youth?" Journal of Studies on Alcohol 49(1):51-61, 1988.

Maxwell, SE, Delaney HD, Dill CA. "Another Look at ANCOVA Versus Blocking" Psychological Bulletin 95(1):136-147, 1984.

Mayer JE, Filstead WJ. "The Adolescent Alcohol Involvement Scale: An Instrument for

Measuring Adolescents'Use and Misuse of Alcohol. Journal of Studies on Alcohol 40:291-300, 1979.

McAlister AL, Puska P, Salonen J, Toumilehto J, Koskela, K. "Theory and Action for Health Promotion: Illustrations for the North Karelia Project." American Journal of Public Health 72:43-50, 1982.

McAlister AL. "Social Psychological Approaches." Preventing Adolescent Drug Abuse. T Glyne, C Luekefeld and J Ludford (eds.) Rockville, MD: NIDA. (NIDA Research Monograph) 47:36-50, 1983.

Moberg DP. "Identifying Adolescents with Alcohol Problems: A Field Test of the Adolescent Alcohol Involvement Scale." Journal of Studies on Alcohol, 44(4):701-721, July 1983.

Moberg DP, Piper DL. "An Outcome Evaluation of Project Model Health: A Middle School Health Promotion Program." Health Education Quarterly 17(1):37-51, 1990a.

Moberg DP, Piper DL. "Obtaining Active Parental Consent via Telephone in Adolescent Substance Abuse Prevention Research" Evaluation Review 14(3):315-323, June 1990b.

Moskowitz JM, "Preliminary Guidelines for Reporting Outcome Evaluation Studies of Health Promotion and Disease Prevention Programs." In Evaluating Health Promotion Programs. New Directions for Program Evaluation, 43. edited by M. Braverman. San Francisco, CA: Jossey-Bass, 1989a.

Moskowitz JM, "The primary prevention of alcohol problems: A critical review of the research literature." Journal of Studies on Alcohol, 50(1), 54-88, 1989.

Murray DM, Hannan PH. "Planning for the Appropriate Analysis in School-Based Drug-Use Prevention Studies." Journal of Consulting and Clinical Psychology, 58(4):458-468, 1990.

Murray DM, O'Connell CM, Schmid LA, Perry CL. "The Validity of Smoking Self-Reports by Adolescents: A Re-Examination of the Bogus Pipeline Procedure." Addictive Behavior, 1986.

Murray DM, Perry CL. "The Prevention of Adolescent Drug Abuse: Implications of Etiological, Developmental, Behavioral and Environmental Models." Etiology of Drug Abuse: Implications for Prevention, CL Jones and R Battjes (eds.), Rockville, Maryland: National Institute on Drug Abuse, 236-356, 1985.

Murray DM, Pirie P, Luepker RV, Pallonen U. "Five- and Six-Year Follow-up Results from Four Seventh Grade Smoking Prevention Strategies." Journal of Behavioral Medicine 12:207-218, 1989.

Nader P, Baranowski T, Vanderpool W. "The Family Health Project: Cardiovascular Risk Reduction Education for Children and Parents." Developmental and Behavioral Pediatrics. 4:3-10, 1983.

National Association of State Boards of Education (NASBE), "Alcohol and Drug Abuse Prevention Education: Survey of the States," 1986.

Newcomb MD, Bentler PM. "Substance Use and Abuse Among Children and Teenagers." American Psychologist, 242-248, February 1989.

Newcomb MD, Huba GJ, Bentler PM. "Mother's Influence on the Drug Use of Their Children Confirmatory Tests of Direct Modeling and Mediational Theories. Developmental Psychology 19(5):714-726, 1983.

Oetting ER, Beauvais F. "Adolescent Drug Use: Findings of National and Local Surveys." Journal of Consulting and Clinical Psychology 58(4), 1990.

Olejnik S, Algina J. "Development and Application of the Student Test Used in the School Health Education Evaluation." Journal of School Health 55(8):309-315, 1985.

Osgood DW, Johnston LD, O'Malley PM, Bachman JG. "The Generality of Deviance in Late Adolescence and Early Adulthood." American Sociological Review 53:81-93, February 1988.

Patton M. Qualitative Evaluation Methods, Beverly Hills, California: Sage, 1980.

Pechacek TF, Murray DM, Luepker RV, Mittelmark MB, Johnson AC, Schutz JM. "Measurement of Adolescents' Smoking Behavior: Rationale and Methods." Journal of Behavioral Medicine 7(1):123-140, 1984.

Pentz MA. "Prevention of Adolescent Substance Abuse Through Social Skills Development." In Preventing Adolescent Drug Abuse edited by TJ Glynn, CG Luekefeld and JP Ludford. Rockville, Maryland: National Institute on Drug Abuse, NIDA Monograph 47:195-232, 1983.

Pentz MA, Dwyer JH, MacKinnon DP, Flay BR, Hansen WB, Wang EYI, Johnson AC. "A Multi-Community Trial for Primary Prevention of Adolescent Drug Abuse; Effects on Drug Use Prevalence. Journal of the American Medical Association 261(22): 3259-3266, 1989a.

Pentz MA, Trebow EA, Hansen WB, MacKinnon DP, Dwyer JH, Johnson CA. "Effects of Program Implementation on Adolescent Drug Use Behavior." Evaluation Review 14(3):264-289, June 1990.

Perry CL, Jessor R. "The Concept of Health Promotion and the Prevention of Adolescent Drug Abuse." Health Education Quarterly 12:169-184, 1985.

Perry CL, Grant M. "Comparing peer-led to teacher-led youth alcohol eduction in four countries." Alcohol Health and Research World 12(4):322-326, 1988.

Piper DP, King MJ, Moberg DP. "Implementing Large-Scale Health Promotion Research Projects: Lessons Your Textbook Didn't Teach You." Presented at the meeting of the American Public Health Association, Chicago, Illinois, October 1989.

Piper DL, King MJ, Moberg DP. "Implementing a Middle School Health Promotion Research Project: Lessons our textbook didn't teach us." In press, Evaluation and Program Planning, 1993.

Polich JM, Ellickson PH, Reuter P, Kahan JP. "Strategies for Controlling Adolescent Drug Use" Santa Monica, California: RAND, 1984.

Popkewitz T, Tabachnic B, Wehlage G. The Myth of Educational Reform. Madison, Wisconsin: The University of Wisconsin Press, 1982.

Post G, Crowther JH. "Variables that Discriminate Bulimic from Nonbulimic Adolescent Females." Journal of Youth and Adolescence 14(2):85-98, 1985.

Reichardt C. "The Statistical Analysis of Data from Nonequivalent Group Designs. In Quasi-Experimentation edited by T. Cook and D. Campbell. Chicago, Illinois: Rand McNally, 147-205, 1979.

Reinisch RM, Bell RM, Ellickson PL. "How Accurate are Adolescent Reports of Drug Use? RAND Publications, 1991.

Robbins C, Kaplan H, Martin S. "Antecedents of Pregnancy Among Unmarried Adolescents." Journal of Marriage and the Family 47:567-583, 1985.

Robinson TN, Killen JD, Taylor CB, Telch MJ, Bryson SW, Saylor KE, Maron DJ, Maccoby N, Farquhar JW. "Perspectives on Adolescent Substance Use: A Defined Population Study." Journal of the American Medical Association, 258(15):2072-2076, 1987.

Room R. "Sociology and the Disease Concept of Alcoholism." In Research Advances in Alcohol and Drug Problems Vol 7, New York: Plenum, 1984.

Rosander K, Sims LS. "Measuring effects of an affective-based nutrition education intervention.: Journal of Nutrition Education 13(3):102-105, 1981.

Rosenbaum E, Kandel DB. "Early Onset of Adolescent Sexual Behavior and Drug Involvement." Journal of Marriage and the Family, 51(August):783-798, 1990.

Rosenberg, Morris. Society and the Adolescent Self-Image. Princeton: Princeton University Press, 1965.

Saltz R, Room R. "Evaluated Community Action Projects in Alcohol Problems Prevention." Contemporary Drug Problems. 17(3), 1990.

Schaps E, DiBartolo R, Moskowitz J, Palley CS, Churgin S. "A Review of 127 Drug Abuse Prevention Program Evaluations." Journal of Drug Issues 11(1):17-44, 1981.

Schaps E, Moskowitz J, Malvin J, Schaeffer G. "The Napa Drug Abuse Prevention Project." Prevention Research Report, Rockville, Maryland: National Institute on Drug Abuse. U.S. DHHS Publication No. (ADM)84-1339, 1984.

Schaps E, Moskowitz JM, Malvin JH, Schaeffer GA. "Evaluation of Seven School-Based Prevention Programs: A Final Report on the Napa Project." The International Journal of the Addictions, 21(9 & 10):1081-1112, 1986.

Sexter J, Sullivan AP, Wepber SF, Denmark R. "Substance Abuse: Assessment of the Outcomes of Activities and Activity Clusters in School-Based Prevention." International Journal of Addiction. 19(1):79-92, 1984.

Stryker S, Serpe RT. "Toward a Theory of Family Influence in the Socialization of Children." Research in Sociology of Education and Socialization, 4:47-71, 1983.

Stuart RB. "Teaching Facts About Drugs: Pushing as Preventing?" Journal of Educational Psychology 6:189-201, 1974.

Thompson B, Wallack L, Lichtenstein E, Pechacek T. "Principles of Community Organization and Partnership for Smoking Cessation in the Community Intervention Trial for Smoking Cessation." International Quarterly of Community Health Education. 11(3):187-203, 1991.

Tobler NS. "Meta- Analysis of 143 Adolescent Drug Prevention Programs: Quantitative Outcome Results of Program Participants Compared to a Control or Comparison Group." Journal of Drug Issues, 16(4):537-567, 1986.

Unger D, Nelson P. "Evaluating Community-Based Parenting Support Programs." Journal of Applied Social Sciences. 15(1):125-152, 1991.

Vener A, Stewart S. "Adolescent Sexual Behavior in Middle America Revisited: 1970-1973." Journal of Marriage and the Family 36:728-735, 1974.

Wallack L. "Practical Issues, Ethical Concerns and Future Directions in the Prevention of Alcohol-Related Problems." Journal of Primary Prevention, 1984.

Wehlage G, Rutter R, Smith NL, Fernandez R. Reducing the Risk: Schools as Communities of Support. New York: Falmer Press, 1989.